

Journal

of the

Association of American Medical Colleges

Volume 5

JULY, 1930

Number 4

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Published bimonthly, January, March, May, July, September and November, at 25 E. Washington St., Chicago, Illinois, by the Association of American Medical Colleges. Subscription Price, \$3.00 per year. Single Copies, 75 cents.

Entered as second class matter at the Post Office, at Chicago, Illinois, under the Act of March 3, 1879.

(Continuing the Bulletin of the Association of American Medical Colleges)

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JOURNAL
OF THE
Association of American Medical Colleges

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Extension Work in Medical Education*

C. R. BARDEEN

Dean, University of Wisconsin Medical School

The primitive function of the medical school was to train apprentices in the healing art. The ideals of this function are embodied in the Hippocratic oath. So long as the healing art was relatively static, this function sufficed. Each generation was trained to follow in the footsteps of the preceding generations. From time to time geniuses arose and made contributions to the art and science of medicine, but methods of procedure altered slowly.

Modern growth of scientific knowledge has changed this essentially static condition of medicine to one of active growth and change. It no longer suffices the son to follow in the footsteps of the father. Even if medical science were not itself as it is, one of the most actively expanding fields in the realm of science, it would not suffice merely to hand on this knowledge from generation to generation, because advance of scientific and technical knowledge has profoundly changed the whole social order and has thus made necessary changes in methods of applying medical knowledge to meet social needs. The modern medical school is thus called upon to cultivate medicine as a living growing subject. Scientific research has been added to teaching as an essential function of the medical school. This research has thus far been concerned chiefly with the physical, chemical, and biological aspects of medicine, but it is becoming increasingly evident that it should deal with the social aspects as well. Medical science is essentially a social science, medical art, a social art. The medical student needs, as never before, a training which will enable him to take an intelligent view of social questions.

Pedagogic Obligations of Medical School

Since modern medicine is in a stage of active growth and adjustment the undergraduate days but mark the beginning of a life long period of study on the part of devoted followers of Hippocrates. The peda-

*Read at the Fortieth Annual Meeting of the Association held in New York City, November 7-9, 1929.

gogic obligations of the medical school do not terminate on the graduation platform. The chief function of a university is to keep the community which it serves in touch with the progress of the world in knowledge. The chief function of a university medical school is to keep the community which it serves in touch with this knowledge relative to the prevention, alleviation and cure of disease and the promotion of health. Training of students for the practice of medicine and scientific research are but means toward this end. Medical progress calls for intelligent cooperation of the layman with those given expert training in the fields of medical practice and of public health. The university is called upon to aid in the promotion of this intelligent cooperation and at the same time to facilitate the efforts of the medical practitioner and public health worker to keep up to date with medical practice. To teaching and research a third obligation has been added to the duties of the medical school, that of medical extension.

Purpose of Extension Teaching

University medical extension, looked at broadly, may be thought of as embracing the whole field of effort exerted by the university to promote in the community which it serves an intelligent understanding of the problems of health and disease. In the narrower sense in which I shall treat the subject today it comprises the efforts made by the university to aid practitioners and health officers to keep up with medical progress. This aid may be extended in one of two ways, first, by special courses and other facilities offered at the site of the university and second, by extending facilities for study throughout the territory served by the university. It is of this latter type of work that I shall speak here.

Extramural Medical Teaching

Organization of extramural medical instruction for physicians has been attempted in various ways. The most important function of medical organization, county, state and national, is that of education. A good medical meeting is one at which those in attendance gain new understanding of medical problems. Members of medical faculties are counted upon to aid in making such meetings successful. Since the expense of frequent attendance at such meetings may throw an unfair burden upon members of medical faculties and those county societies which most need such men on their programs may be least able to pay these expenses, some provision for covering such expenses is a legitimate charge against the budget of a university which has at heart the welfare of the community which it serves. Where a university has a special

extension division for extramural teaching such a division should have a special section for medical extension and one of the functions of such a section should be to facilitate the work of county societies in obtaining lecturers from the faculty of the medical school and, where necessary, to cover the expenses of attending meetings. This arrangement we have at Wisconsin.

Extension Teaching in New York and Pennsylvania

Numerous attempts have been made by county societies and other organized groups of physicians to conduct courses of study more systematic than offered by the programs of society meetings. The most successful of such attempts appears to have been made in Pennsylvania and New York. In Pennsylvania the state and county societies have had the cooperation of the Graduate School of Medicine of the University of Pennsylvania. The initiative in forming study groups is taken by physicians desiring such work. A group representative confers with the Dean of the school concerning the conduct of the courses and their organization. The teachers are selected from the faculty of the medical school or from private practice. The teacher gives a day to the group for which the group pays him his expenses and a small honorarium. The course extends over a period of two years and comprises 150 hours of work. The dean checks up the work done, examines the students, and awards a certificate. I have summarized this account from a paper on Extension Teaching given in the Bulletin of the American Medical Association for June, 1927, which states that the plan is definite and worthy but has proved too expensive to operate widely with funds available.

In New York organization of extension graduate medical education had its inception in Kings County where the county society in cooperation with the Long Island College Hospital organized in 1922 an extension program of courses. Work of similar type was undertaken in Buffalo and in Queens County and outside of these large medical centers the State Medical Society through its committee on public health and medical education "has conducted one or more six weeks' courses in nearly every county of the State." The session which is usually about two hours long, may be a lecture or a lecture and clinic.

Extension Teaching in North Carolina

In states having universities with well developed extension divisions medical extension courses have, as a rule, been most successful where organized medicine has cooperated with the extension division and has entrusted to the latter the organization of the courses.

The Extension Division of the University of North Carolina appears to have been the first to undertake work of this type. In 1916 the State Board of Health, the Medical School, and the Extension Division, in cooperation with the Fourth District Medical Society of North Carolina "arranged two itineraries, each of which was to be covered by a clinician every week for twelve successive weeks. There were six centers on each itinerary; in each center a lecture was given, followed by a clinic. A group or class of physicians was organized in each center and a tuition fee sufficed to cover the salary and traveling expenses of the instructor was charged. Expenses of organizations were borne by the University and the State Board of Health. All work with patients was done during the sessions, no cases being worked up in advance."

This work was interrupted by the World War, but was resumed in 1922 and has been carried on ever since. The summary of work up to 1926 given in the Bulletin referred to above shows that in six years work was conducted in 42 centers, the total enrollment was 1,185, number of different physicians enrolled 852, 40 to 45 per cent of all engaged in active practice in the state. Attendance at lectures varied from 76.2 to 90 per cent. The subjects treated were pediatrics, pathology and general medicine. The courses were given during the summer, and instructors were brought in from outside the state. Towns of from 1,500 to 50,000 population were chosen as centers. Only those centers guaranteeing an enrollment of at least 15 were chosen. A personal office-to-office canvass was made in securing enrollments. The tuition fee for each physician was \$30. The length of the session was about two hours. After a one hour lecture on the topic of the day, from one to ten patients were seen and discussed.

Extension Teaching in Wisconsin

Similar courses have since been given in Wisconsin, Missouri, West Virginia, Oklahoma, and Kansas, and have at least been contemplated in a number of other states. At Wisconsin when these extramural courses were first offered in 1917, they were conducted by a member of the Medical School faculty in conjunction with the Secretary of the State Medical Society. Later they were conducted by Wisconsin specialists, especially appointed for the purpose. At the instigation of the State Medical Society in 1917 an appropriation of \$5,500 per year was obtained to cover the administrative expense of the medical extension work, and this appropriation has been renewed at each session of the Legislature. In a recent reorganization of the Medical Extension

sion work a joint committee from the State Society and the faculty of the Medical School has been appointed to cooperate with the Extension Division of the University in carrying out the work. Courses of study essentially on the North Carolina plan have been conducted successfully in various parts of the state and have been placed in charge of salaried instructors brought in from outside the state.

For two years the work of the extramural extension courses has been devoted to pediatrics and have been conducted during the summer half of the year. In 1928 two circuits, each extending over twelve weeks were conducted by a specialist who had had experience in similar teaching in other states. One circuit included six cities in the southern part of the state; the other circuit six cities in the central part of the state. During the past summer a twelve week circuit was given in the north western part of the state. This included six cities and was divided into two portions, each of six weeks and each conducted by a different specialist experienced in this type of teaching. The total enrollment for each of the twelve weeks' courses has been about 100, and the attendance has been good. For next year we are planning several circuits for extension teaching in internal medicine.

Requirements for Successful Teaching X

Judging from our own experience in this type of extension teaching, its success depends upon organization by those experienced in extension teaching and upon the selection of men to conduct the courses who are not only capable specialists but men who can bring in and present in an attractive way new points of view. Whether enough men of this capacity can be induced to devote themselves to this type of work during a considerable part of the year, so that the various states which might desire to undertake it can be kept indefinitely supplied remains to be seen. It may be that in the long run short courses given for practitioners at the universities and special courses organized at various medical centers outside of university towns with the cooperation of experienced medical teachers will prove to be a more enduring method of aiding practitioners to keep up to date. Through attendance at county, district, and state medical society meetings of the community immediately served by a university medical school members of the medical faculty and their points of view become well known to the members of the profession. The advantage of bringing in men from a different territory to conduct the special extramural teaching is that it brings in a fresh point of view. To the teacher thus brought in there is the advantage of gaining breadth of view as to the conditions of medical practice in different regions.

For an extension course of the type outlined above, it is customary to prepare mimeographed sheets covering in some detail the topics treated in the course. This enables those taking the work to get a better grasp of the subject than is possible from listening to lectures or observing demonstrations. The chief value of a lecture or a demonstration comes from stimulating interest. Understanding comes from careful observation and thought accompanied by reading scientific articles and books. Probably the most valuable extension work a medical school can do is to facilitate the use of scientific literature. At any rate I feel that the most valuable medical extension service which we offer at Wisconsin is the Medical Library Service.

Extension Medical Library

For a number of years we maintained at the Extension Division a packet library service through which reprints relating to subjects of special medical interest were loaned on request to physicians requesting information in these fields. Recently our extension library service has been greatly expanded and journals and reference books are now loaned as well as collections of reprints. The average number of requests now filled each month is over five hundred. In addition a bibliographic service is maintained through which a list of the chief articles relating to a given subject is furnished. For the books, periodicals, and reprints the physician is charged the cost of postage both ways. For the bibliographic service a special charge is made to cover the cost of labor in preparing the bibliography.

The Extension Medical Library service is maintained in connection with the medical library of the Medical School, and the same librarian is in charge of both, but special provision in the budget of the Extension Division is made for the extension work. Reference books and periodicals most in demand for the extension service are duplicated so that the extension service does not interfere with the local use of the medical library. Previous to the establishment of this service at Wisconsin, our librarian, Miss van Zandt established a similar service at the State Library at Des Moines, Iowa which has been much appreciated by the medical profession of that state.

Extramural Educational Influences of Medical School

The extramural educational influences of a university medical school are extended to the profession of the community which it serves in many ways besides more or less definitely organized extension services. In state universities at which are located in connection with the

medical school such laboratories as those of the State Board of Health and the State Board of Charities, much valuable educational work may be extended through laboratory services offered in these laboratories to physicians. At Wisconsin both the laboratories mentioned are located at the University in connection with the medical school. The laboratory of the State Board of Health offers a diagnostic service for the physicians of the state for such diseases as diphtheria, tuberculosis, typhoid fever, and gonorrhea. The laboratory of the State Board of Control, the State Psychiatric Institute, offers to physicians diagnostic services for Wassermann's tests and blood chemistry. In each of these laboratories over 50,000 specimen per year are examined, and in the correspondence in connection with the examination of these specimens, much work of real educational value is accomplished.

In the trifold duties of the modern university medical school, undergraduate teaching, scientific research and extramural education, the greatest difficulty lies in so organizing the work as to keep the three fields well balanced. When well balanced each field aids the other. Lack of balance by over enthusiasm for one field at the expense of the others is likely in the long run to prove detrimental to the favored field.

An Experiment in Medical Graduate Work*

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Minneapolis

In tracing the long evolution of medicine from the practice of magic to the application of science in the art of healing, some future historian may find a place in a footnote at least, to say that at a meeting in New York City in November, 1929, the representatives of medical colleges and the representatives of universities fostering research and graduate work jointly considered graduate work in medicine. If he is fully informed and accurate, he will add that this occasion was significant not because it initiated something new, but because it was a recognition of the fact that something new was already under way and had grown to such proportions that those who participated felt that they should interchange experiences and appraise the results of the efforts made in various places to foster medical research and to train and certify medical specialists. Such a footnote to the history of medicine would be accurate and sufficient. Having given today its proper place among the tomorrows, let us go back to yesterday.

Beginning of Graduate Work in Medicine

The dawn of the yesterday with which I am asked to deal was 1915, in the State of Minnesota. At that time there was one medical school granting the degree of doctor of medicine. This was part of the State University. There were two organizations taking that degree as the basis for further, more or less prolonged, additional training. One was the university itself, in Minneapolis, where the additional training was largely in the fundamental departments already associated with the central university graduate school and only incidentally in the clinical departments, which were at that time no part of a graduate school either medical or central. The other organization, which for some years had been giving advanced special training in medicine and surgery, was the Mayo Clinic at Rochester, some eighty miles away. Young doctors had for some years sought and received through assistantships over a period of years, or even for shorter time, additional valuable training in their fields of specialization. They went out from the Mayo Clinic without any degree or any special form of

*Read at the Fortieth Annual Meeting of the Association held in New York City, November 7-9, 1929.

certification to take their place along with self-nominated specialists who had unlimited credentials gathered in so-called postgraduate schools.

The Mayo Foundation

It was at this juncture that the Doctors Mayo offered the regents of the University of Minnesota the sum of \$1,650,000, since grown to over two million, for the endowment of medical education and research. That offer raised many problems and made medical graduate work at its very inception a topic for even more than statewide discussion. Issues quite extraneous to the major ones to be considered brought the matter of this endowment even before committees of the state legislature. As this paper is meant to be a very frank statement of experiences, it must record that quite the most curious experience was a public hearing before joint committees of the two houses of the legislature to whom a bill forbidding the acceptance of the gift had been referred. The exigencies of the situation made it seem advisable to ask Dr. W. J. Mayo to appear before a crowded assembly hall in explanation and defense of himself and his brother in giving a million and three-quarters to the state university. I am sure that I do not offer the testimony of a prejudiced listener when I say that that simple informal address met the definition of eloquence, if eloquence be spoken discourse that moves an audience from doubt or dissent to the support of the speaker and his cause. The bill died in the committee room.

The opposition to the association of the Mayo Foundation with the University was after all but an incident, but a very interesting one from many aspects. From our standpoint today only two or three can contribute anything constructive to this paper. In the first place, it made plainer than ever before that society had an even greater stake than the medical profession itself in finding some acceptable way to distinguish between the charlatan and the really competent well trained specialist. In this important matter, out of which are the issues of life and death for those stricken with disease and its consequent suffering and disabilities, in this vital affair of where to go for aid when the usual procedures have failed, the public was without guidance. The states so far have limited themselves to examinations for those who go into general practice and want to practice a certain way. If you do not want to do it that way, you do it any other way so long as you keep free from the criminal law. The fact that the public seems bound to have its quacks and healers did not, it seemed to us at Minnesota, free us from the obligation to recognize the need of special skill and training and to mark it out so that the discriminating would know a trained specialist from a brazen imitation.

Clinical Medicine and Basic Sciences

The second consideration related to the status of clinical medicine as distinguished from the so-called basic sciences. Could surgery, obstetrics, ophthalmology, urology, internal medicine, pediatrics and orthopedics be allied, associated, or developed in connection with a kind of training and in a kind of institution that talked in terms of science and research and discovery and additions to a body of knowledge that could be reduced to generalization? That was a poser for anybody but an optimist. It was true that the words research and scientific method rolled off the tongue of the surgeon quite as easily as they did off the tongue of the anatomist, but identity of vocabulary is no proof of common ideals or purposes even in a political program. All you could do was to hope that results would justify an attempt to make surgeons better than technical operators and ophthalmologists more than refractionists. And toward that end you had open a free field of experimentation in educational procedure.

The affiliation brought together an organization that represented a wealth of clinical material together with the necessary laboratories and some experimental work and a university medical school strong in its laboratory departments and scientific staff, with only a modest teaching hospital. We thus felt that we had, as we saw it, the fundamentals which justified our attempt to organize advanced clinical training on the same basis as graduate work in other disciplines, and to reward it with an advanced degree such as that of Master of Science or Doctor of Philosophy. It was in this attempt in 1915 to bring the clinical fields as such into the circle of the sciences with their own teachers, resident students and body of data that the novelty of the Minnesota experiment consisted.

An Educational Experiment

The political and professional opposition was a minor matter compared with the difficulties that faced us in this educational experiment. There were no precedents that we cared to follow in the so-called short course postgraduate schools. We were asking for higher qualifications in the students, longer periods of residence and demonstrated achievements in studies, skills and investigation. Our safest procedure was quite clearly some adaptation of established practices in the other disciplines which meant programs of study, the retention of reports of progress, exclusion of the incompetent, the use of final written and oral examinations and a thesis.

These considerations and others of a greater weight led to the coordination of this new work under the existing graduate school

organization rather than setting up a differentiated graduate school of medicine. I think all experience shows that when any field of endeavor attempts to put itself on a level in achievement and educational procedure with other established branches of knowledge, it develops and profits by the closest possible association with the recognized sciences, provided, always, that it is given the latitude its growth and special needs demand. That has been true in our case, but the possibility of demonstrating it is due largely to the fact that we had in the dean of our medical school a man large enough to put the University and the interests of science above his own glorification or that of the particular administrative unit he represented. All this made it possible to mobilize without artificial barriers all the resources of the University in all its staff and laboratories at any point where its resources or experience could be helpful. The Mayo Foundation group, without any academic traditions, supplied a stimulating challenge to the routine and fixation that grows up and sometimes hampers as well as aids the essential purpose of a graduate school.

Details of Organization

I am going to assume for the moment that you have enough interest in the details of procedure and organization to justify a brief description before considering the results.

At the time the negotiations were begun, the Mayo Clinic was not incorporated and could not well assume the permanent legal obligations that the state required. The Mayo Foundation for Medical Education and Research was formed and incorporated and to three trustees the Doctors Mayo, as founders, passed the endowment of a million and a half. Later the endowment was transferred to the direct care of the University regents and the Foundation itself became for its essential purposes a part of the University. Under this arrangement the Clinic as such undertook to furnish the Foundation with buildings, equipment, etc., which represented the entire facilities of the Clinic. The latter agreed to pay salaries and support fellowships in so far as they could not be met by the income from the endowment. This income from endowment has never met more than a fraction of the expenses for graduate work and research at Rochester, the remainder being carried by the Clinic.

The present arrangement, if unsatisfactory to the University regents at the end of a twenty-five year period, in 1942, authorizes the regents, by a three-fourths vote, to give notice of termination, and three years later, if still of the same mind, they may, by the same vote, cause the

whole net income of the Foundation fund to be expended for work at or directed from the University of Minnesota at Minneapolis or other places, including Rochester.

The Mayo Properties Association

In the meantime, the Doctors Mayo, in order to insure the permanency of the medical and educational work at Rochester, have substituted for their informal life partnership the Mayo Properties Association, with a minimum legal life of thirty years dating from 1919. This association of the Doctors Mayo and seven others took over, by gift, all the properties of the Clinic and all obligations as to teaching facilities implied and expressed in the relations with the Mayo Foundation and the University under the contract of September 13, 1917. The Mayo Clinic still exists under an organization that it is not necessary to describe, and pays the Mayo Properties Association as a proprietary concern a rental which is all the net income of the Clinic. The Properties Association is charged with the accumulation of an endowment to be carried in perpetuity for the protection of the Foundation and its contract with the University. It may, when that fund is ten million dollars, add it to the two million already in the Regents' hands; and it is further provided that the ultimate beneficiary of the holdings of the Properties Association shall be a Class A medical school in the United States to be selected by the Association when it shall be demonstrated that the ideals of the Clinic can thus be best carried out. This latter provision opens up interesting and novel possibilities for the University of Minnesota or any other member of the two associations meeting here today.

The Graduate School of the University of Minnesota

The organization necessary for carrying on the educational direction of the medical work was much simpler than what has been summarized above. The Graduate School of the University was already organized by groups representing fields of knowledge. There existed a medical committee of five whose chairman was a member of the Executive Committee which, with the dean, administers the school. The first task in readjustment was to create a selected faculty at Rochester and from this was appointed a committee of five at Rochester under the chairmanship of Dr. L. B. Wilson, who was also made director of the graduate work there. The faculty at Rochester stands on a different footing than any other having membership in the Graduate School. When the first group of professors and assistant professors on the Mayo Foundation was appointed, it had its rank and place

solely in the Graduate School and was carried on the payroll of the Clinic and Foundation. All other instructors in the Graduate School are a selection from the staff of existing departments and colleges and have the same ranks to which they are appointed in their respective colleges and are paid wholly from the college budget.

The two committees act separately in all local matters on two campuses eighty miles apart, but in all major matters they act as a joint committee under the chairmanship of the nonmedical dean of the Graduate School, who is like a land lubber presiding over the navy department—his vocabulary gets tangled every once in a while, and he still prefers right and left to starboard and larboard or their medical equivalents.

Qualifications for Students

The qualifications for the students were placed from the beginning on a common high level of the bachelor's degree or its equivalent, plus the medical degree with an intern year. The number accepted is strictly limited to the facilities in either place, for a graduate student needs much more than an undergraduate in clinical and laboratory opportunities. In Minneapolis, consideration had to be given to the demands already made on existing facilities by undergraduate teaching, while the work in Rochester could expand with the growth of the business and facilities of the Clinic which were available to the Foundation. Last year the total number in Minneapolis was 91, and the number in Rochester was 357.

Rewards of Fellowship

Practically all of these students are on a service fellowship with what might be considered a generous stipend for a fellowship. In the clinical branches it is \$800 for the first year, \$900 for the second, and \$1,000 for the third year. In view of the scarcity of suitable candidates in the laboratory subjects and the even more definite need for preparing men for work in anatomy, pathology, pharmacology and bacteriology, the fellowships in these fields are \$1000, \$1200 and \$1500, respectively.

Even this difference and the fact that the medical degree and internship are not prerequisites in these fields does not bring the number of applicants that might be expected and does give some cause for wondering where the research men and teachers in the fundamental branches are coming from. I can recall two cases where men who had taken the Ph.D. degree with us in these fields later finished their medical work and took the same advanced degree in a clinical specialty,

and are now very successful practitioners. One day I met a professor of anatomy on the campus. When I inquired why he looked so downcast he replied, "My eighth and last anatomical child has just turned clinical."

The disproportionate number of inquiries and applicants in the clinical fields makes the maintenance of admission standards easy, and the choice of the really best difficult. Dr. Wilson reports that last year at Rochester there were 1,260 inquiries and 319 completed applications of which only 44 could be taken—about half as many in that year as are usually taken, because of excessive appointments in the preceding year. As the inquiries at Minneapolis come to departments as well as to the Graduate School, I can give no similar figures for the Minneapolis campus. I do know that in both places there are fewer futile inquiries from tired general practitioners, 45 years old or more, in the small towns in the South and West who would like to be surgeons. Further than that the Rochester applications show that surgery is making way for medicine and other fields in the interests of those who want training in a clinical specialty.

The Time Requirement

The three-year period of the fellowships in the clinical fields marks the normal minimum time required to obtain the double object of increased professional skill and an introduction to research implied in the laboratory and thesis work. As all the fellowships are service fellowships with somewhat exacting duties in hospital or classroom, the period of the fellowship is none too long; for all those taking clinical work are required to support it by a minor in a laboratory subject. No one is allowed to take wholly clinical work.

The Teaching Method in Clinical Subjects

The teaching method in clinical subjects is wholly informal and no attempt is made to form classes. Conferences, or what some would call seminars, are common. Reading is suggested and reviews of the literature and basic material not already mastered in previous work or necessary to work in hand are carried forward steadily. For the groups coming up for the oral and written examinations, it may be intensive for a period; and unless mastery is shown, candidates are recommended not to try the examinations. Only those whose theses have been accepted are eligible in any case. Master's theses are read by three of the faculty; and doctor's theses, by five. In all cases, reading and examining committees are drawn from both faculty groups.

No Mayo Fellow is passed without examination by representatives of the Minneapolis faculty, and no Minneapolis student escapes the same scrutiny by representatives of the Foundation faculty. Any student who comes through this mill cannot complain that he has not earned the degree which is granted him by the University.

Type of Examinations

The examinations are held in Minneapolis quarterly, if necessary, following a schedule which for two or three days requires the almost undivided attention of a group from the joint faculties. If time permitted, I should like to comment on these examinations as an education expedient—I mean an expedient for educating the faculty, if nothing more. Aside from the purposes examinations usually serve and emphatically that of securing unit form standards between the two campuses, they have been of great help in improving the faculty. In the beginning the clinical men in neither place were quite sure what you did and what it was all about. They have learned partly from the laboratory men who did know and were veterans, partly from each other in both success and failure. It is a long step from the early days when a clinician almost assumed that anyone who had worked with him ought to be accepted on faith or as a matter of professional courtesy to the present day when even if apprehensive he now views with reasonable objectivity his favorite mowed down by a civilian pathologist or an upstart colleague of lower rank in his own or the other faculty. He no longer roars, he only grumbles subterraneously when his candidate stubs his toe on the language requirement. The evolution has been accompanied by better teaching and more definite attempts to see that the peak of the pyramided specialization has a sufficiently broad foundation.

If I had to report that every thesis was accepted, every examination passed and every fellow got a degree, I should be reporting an educational failure. If I can offer only the testimony of an eye witness about the examinations, I can, in the matter of the theses, refer you to the two volumes of master's and doctor's theses that we published some years ago. About their quality you can make up your own mind. Those volumes were put out for that purpose and as an aid to our own staff and students in seeing just what had been an acceptable thesis.

Results of the Experiment

I want, in conclusion, to speak briefly of the outcomes I really had in mind in phrasing the subject of this paper.

In the fourteen years that consolidation has been in existence, the University has conferred a total of 341 earned degrees in the various medical specialties. Of these 288 were masters of science with designation of the specialty in the case of clinical fields, and 53 were doctors of philosophy. There were 189 masters from the Foundation fellows, and 99 from the Minneapolis group. Of the 53 doctors of philosophy, 41 did their work at Minneapolis, and 12 at Rochester, the difference being explained, in part, by the presence of a full complement of the fundamental departments in Minneapolis. This explanation is, however, much more valid in the distribution of the master's degree than it is in that of the doctor's degrees. Of the 99 masters from Minneapolis, 83 were in fundamental or laboratory subjects; and 16 in clinical specialties. Of the 189 masters given Foundation students, 18 were in fundamental subjects; and 171 in clinical specialties. Of the 41 doctors from Minneapolis, 24 were in fundamental subjects; and 17 in clinical specialties. Of the 12 from the Foundation, 5 were in fundamental subjects; and 7 in clinical specialties.

What Becomes of the Graduates?

The question that is of greatest interest is what becomes of these men who have added in the clinical fields three to five years or longer to the seven years in college and internship required for entrance. The answer is one that is gratifying to those who urged the union and is, I think, of significance for the future of medical teaching and training. Dr. Wilson, in summarizing the careers of the Mayo Foundation fellows who took degrees, reports that 61 per cent are known to be teaching, and that in addition 25 or 30 departments in medical schools outside the Foundation are now headed by men who have gone out with training at Rochester. Of the Minneapolis graduates we know that over 70 per cent are engaged in teaching and research. And the interesting and significant thing is to know that these teachers are just as numerous among the ranks of the clinical specialties as among those who in the fundamental subjects may be supposed to have prepared for teaching and research. Within the last year three leading universities have called to the headship of clinical departments men who had taken degrees at Minnesota in their specialties. Many of these teachers have been absorbed by our own faculties, but every year they leave one campus or the other for teaching elsewhere; and members of the Mayo Clinic staff who have been put on the Foundation faculty and come to be teachers as well as practising specialists are passing freely into the new career that has opened through this teaching experience.

I have not said anything about the continuing evidences in publication of the scientific activity of the holders of degrees. That would be another yardstick by which to measure results, as would their succession in the practice of their specialty, if that could be measured objectively. What I have said about teaching has been in no sense for the glorification of our attempt to organize medical graduate work on a different and, I believe, a sounder basis, but because it shows that medical schools are coming to some more rational and objective way of recruiting their teaching and research staffs in the clinical subjects. If in the future the supply of trained and tested teachers who move freely on call is increased in these fields where propinquity and local reputation has too often determined appointments, medical education in America can move to newer and higher levels.

As I see now, certain great centers in medical educations massing new resources that dwarf what we started with, I cherish the hope that the graduate medical work they undertake in all fields will cut loose from the old quick and easy type and that in planning it they will find some encouragement from the results of our young and modest experiment at Minnesota.

The Statistical Method as an Adjunct to the Teaching of Medicine in the Clinic*

JOHN WYCKOFF

Secretary University and Bellevue Hospital Medical College

It is not my purpose to discuss at any length the value of the statistical method in the investigation of disease. I shall assume that the fact that it has limitations is known to all, but I shall also assume that it is appreciated that in any biological science and particularly in one closely related to social science, statistical methods must be used at times. In this connection Yule¹ say that, although the biologist can and does use experimental methods "to a very large extent, he frequently can not approximate closely to the experimental ideal and must depend upon methods specially adapted to the elucidation of quantitative data affected by a multiplicity of causes," this last phrase being his definition of the statistical method.

Nor is it my purpose to go into the history of the use of statistics in teaching in medicine, except to state that, consciously or unconsciously, clinical teachers have always used this method. Osler's typhoid committee has become a tradition in medical teaching; in the ten years that I have been attending the sessions of this Association it seems to me that at least one speaker has mentioned it each year.

The Need for Statistical Material

In reorganizing ward teaching in the department of medicine it was decided that we would enlarge on the experience of the clinic itself as an aid in instruction.

For example, if a patient presented some comparatively rare disease or some interesting attribute of a diseased state seen but a few times a year on the service, such as Addison's disease or auricular flutter, the student would be asked to go over the other records of such conditions which had been studied, and report on the experience of the clinic. On the other hand, in the case of more frequently met conditions such as pneumonia, the heart diseases, or in the case of certain frequently met disordered functional states, such as auricular fibrillation, premature contractions, or of certain therapeutic measures, such as serum in pneumonia, digitalis in heart failure, or diuretics for edema, studies of certain specified attributes were assigned for reports.

*Read at the Fortieth Annual Meeting of the Association held in New York City, November 7-9, 1929.

1. Yule: An Introduction to the Theory of Statistics.

At once it became evident that if such studies and reports were to be of real value some guidance must be given to the student. We had rather feared the evils of spoon feeding, and our attitude at first was simply, "Here are such and such records kept with more or less care. They are at your disposal. Do what you can with them." Some of the results were astounding, and while the reasons for frequent rather ridiculous conclusions were obvious, it seemed, though the trial and error method inevitably showed the students many of the limitations of the statistical method, that it was not the most efficient way of introducing them to a study of their own and other workers' experience.

On the other hand, it hardly seemed fair to take the time of a fourth year student to give him a course in statistics, so at first we made available for them on the ward and in the record office four or five of the rather simple books on statistical method. At once improvement was noted, but we felt that much time could be saved our clerks if early in their course at least a two hour period could be spent in a discussion of the statistical method and certain phases of its technic.

Plan for Statistical Teaching

Our clinical clerks are in the medical clinic in their fourth year for two months and during that time, in addition to their regular ward teaching and a pathological conference once a week, they have two conferences a week on regularly assigned subjects, each conference lasting two hours. These conferences are kept uniform throughout the year, so that each section of students covers the same subject matter. Assignments for reading for the whole section are posted. Also special topics are assigned to individual students and they are required to report on them without notes. The first hour of the conference is used in this way. During the second hour, cases of the disease or conditions under discussion for the day are presented and statistical studies of pertinent facts shown.

It was decided to give up one of these conferences to a consideration of the statistical method. This was placed early in the series, so that the later studies would be better done and could be subjected by the students to a more intelligent criticism. The program for the conference on statistics is as follows:

CONFERENCE ON STATISTICAL METHODS

Thursday, October 10, 1929, Conference Room, Fifth Floor, 9:15 to 10:45 A. M.

DR. JOHN WYCKOFF

CLINICAL CLERKS ARE NOT EXPECTED TO LEARN FORMULAE.

Suggested Reading for Section

- Medical Biometrics and Statistics: Pearl, pp. 19, 74-88, 105, 209, 220, 255-263.
 An Introduction to the Theory of Statistics: Yule, pp. 1-18.
 Readings and Problems in Statistical Methods: Secrist, pp. 148-149.
 Fundamentals of Statistics: Thurstone, pp. 67-85, 161-186.

Special Topics

1. Statistics—brief historical survey, the present use of terms, definition of statistics, statistical methods, statistics of attributes, statistics of variables. Yule, pp. 1-18 and Pearl, p. 19. 5 minutes—STELLA
2. Facts of importance to be remembered about the original observations and sample. Secrist, pp. 148-149 and Pearl, pp. 255-263. 10 minutes—RICHTER
3. Theory of Probability. Pearl, p. 220. 10 minutes—SCHWARTZ
4. Probable error concept. Pearl, p. 209 and Thurstone, pp. 161-186. 10 minutes—LIEBER
5. Mean, Median, Mode. Thurstone, pp. 67-85. 5 minutes—HERMAN
6. Technique of collecting, classifying and tabulating statistical data. Pearl, pp. 74-84. 10 minutes—LEVIN
7. The technique of the graphic presentation of statistical data. Pearl, p. 105. 10 minutes—RUBENFELD

Problems

1. Make a frequency table of the last 2000 cases discharged from the Third Medical Division by five year age groupings. Present the table and graph of the same, the abscissae being the age classes, the ordinates, the frequencies. State problem and criticize observations and sample. BIEBER and GOLDBERG
2. Make a frequency table of all cases discharged from the Third Medical Division with a diagnosis of arteriosclerotic heart disease by five year age groupings. (The data for this last may be obtained from Bieber and Goldberg. What does this show? Discuss the limitations of the conclusions which may be drawn from this data.) GUTMAN and HILLMAN

Methods of Discussion

Seven specific subjects briefly presented by seven students are discussed by the section and myself. Under the first of these topics, which includes a brief historical survey, nomenclature and definitions, care is taken to be sure that the section clearly understand the difference between experimental and historical investigation.

The second special topic, "Facts of importance to be remembered about the original observations and sample" is particularly stressed. The fact that a sample must be considered both quantitatively and qualitatively is emphasized; criteria for determining when a sample may be considered adequate and good are discussed. The question of the availability of samples and the possibility of determining the truth or error of attributes which are to be studied are also considered.

These last two points are particularly emphasized, as in our experience many wrong conclusions are drawn because of lack of early consideration of these fundamentals.

The next subject has to do with the measures of central tendency, the mean, the median and the mode are defined, and simple methods of determining them described. There is, then, a discussion of the probable error concept and the theory of probability; care is taken not to confuse the students by having them learn the formulae, for although they are comparatively simple, we have found by experience that if we begin to discuss formulae, the purpose of the conference is lost sight of.

Technic of Statistical Study

At this point the technic of collecting, classifying and tabulating the statistical data comes up. An effort is made throughout the whole of this conference to impress on the students the fact that it is impossible for them to learn the complete technic of statistical study in one conference, but that it is our purpose to show them that there is a technic and to suggest to them aids for improving themselves in its use.

Lastly, there is a discussion of the graphic methods of presenting statistical data. The conference is concluded by the presentation of two frequency tables. These tables are then discussed with particular attention to the availability of the sample, the accuracy of the facts, and the adequacy and goodness of the sample. The method of presentation and, lastly, the significance of the two curves are considered and the conclusions drawn are analyzed.

Before the conference is ended, I tell the students that in the conferences to follow, certain statistical data will be presented by various members of the section and that they will all be called on to analyze these studies and to criticize not only the conclusions, but the ways by which the conclusions were arrived at. Following this conference there are conferences in these subjects: pneumonia, diabetes, nephritis, the anemias, gastric ulcer, the heart diseases and digitalis. In nearly every one of these one or two statistical problems are reported. When large numbers of cases are used, correlations are made only upon such data as appears on the divisional summary card. On smaller series of cases, the data is collected directly from the charts. Since the divisional summary card is made out by a clinical clerk, and since the students themselves work on all charts, they are able to judge of the value of the original data.

It has seemed to us that since we have systematized this method of teaching, our clerks have become much more interested in studying the

course of disease and much more understanding of the variations of individual case from the average text book picture. Furthermore, loose statements tend to become less frequent and the analysis of work of others, both of students' studies presented in the conferences and reports from the literature are more searching.

The Typical Conference

I have given the wrong impression if I have led you to believe that the larger part of the work of these conferences is made up of statistical studies. It is not. A typical conference consists of (1) brief resume of key articles in the literature, (2) the presentation and discussion of typical cases from the ward, and (3) the report of a statistical study or studies germane to the subject from the records of the clinic. I wish particularly to emphasize the fact that the initial conference on the statistical method has seemed to improve the succeeding ones to such a degree that the two hours so spent appear to have been efficiently used.

Program of a typical conference showing how statistical problems are used as a part.

CONFERENCE ON PNEUMONIA

Tuesday, May 7, 1929, Conference Room, Ground Floor, 11 to 12:30 o'clock.

DR. M. B. ROSENBLUTH

Suggested Reading for Conference

1. Avery, Chickering, Cole and Dochez: Monograph of the Rockefeller Institute, No. 7, Oct. 16, 1917. To be read by the whole section.
2. Cecil, R. F. and Larson, N. P.: Clinical and Bacteriological Study of One Thousand Cases of Lobar Pneumonia, J.A.M.A., Vol. 79, p. 343, July 29, 1922.
3. Bullowa, J. G. and Rosenbluth, M. B., Park, W. H. and Cooper, Georgia, Symposium on use of anti-pneumococcus refined serum, J.A.M.A., Vol. 90, p. 1349, 1358, April 28, 1928. (Reprint in office).
4. Eastwood, A.: Review of Recent Work on Pneumococci, Report on Public Health and Medical Subjects, No. 13, Ministry of Health.
5. Meakins, J. C. and Davies, H. W.: Respiratory Function in Disease, pp. 218-241.
6. Griffith, F.: Types of Pneumococci, Reports on Public Health and Medical Subjects, No. 13, Ministry of Health.
7. Means, James Howard: Medicine, Vol. 111, No. 3.

Special Topics

1. Report on method of production of crude antipneumococcus serum.
10 minutes—CHASKALEVA

2. Report on method of production of refined antibody solution of Felton.
Report on method of production of refined antibody solution of Huntoon.
10 minutes—TADDEO
3. Description of Roth-Barach Oxygen tent. 10 minutes—MOSKOWITZ
4. Description of Oxygen Chamber at Rockefeller Institute.
10 minutes—BECKER
5. Explain the dyspnea of pneumonia. 10 minutes—BLOOM

Problems

1. Compare the per cent mortality in serum treated cases and the control cases in types I, II, III and IV. In discussing your results draw comparisons with the results of Cecil and Larson (as above). PASASHOFF and ROSE
2. Compare the results on mortality of patients with positive blood cultures in the serum treated group and in the control group. (The original data for these studies may be obtained from the discharge cards on cases of lobar pneumonia occurring on the Third Medical Division from October 1, 1928 to May 1, 1929.) SCHULTZ and SIEGEL

Postmortem Examinations in Graduate Medical Instruction

H. E. ROBERTSON

Section on Pathologic Anatomy, Mayo Clinic, Rochester, Minnesota

For convenience, in discussing this phase of graduate medical instruction, students may be classified in three groups, Group 1, those who aim to become specialists in pathology; Group 2, those who plan to enter some other field or fields of medicine, but first desire a comprehensive knowledge of the gross and microscopic characters which disease may commonly reveal, and Group 3, those who have insufficient time or inclination (or both) to devote any stated period to the study of pathology but nevertheless are anxious to see the pathologic manifestations of disease and to learn why patients in whom they are interested fail to recover.

To all three of these groups the division of pathologic anatomy in any graduate school of medicine must minister, i.e., it must train professional pathologists, it must teach pathology to future clinicians and it must keep alive the interest of all the staff and students alike in the appearance of disease and the causes and prevention of death.

Naturally, the detailed measures by which these needs are met must vary according to the conditions which prevail at each individual school, but certain principles which should govern all such efforts are fairly well established and these principles I propose to discuss, with illustrations from the work as it is carried out at The Mayo Foundation in Rochester.

General Principles

1. PERMISSIONS FOR EXAMINATION. It may savor of triteness when one reiterates that the percentage of permissions is an index of the scientific spirit that prevails in any medical group—nevertheless the fact deserves constant repetition. When the clinical and laboratory staff know that for every death that may occur, inevitably a sincere effort will be made to secure permission for a postmortem examination and that in a large percentage of cases this permission will be obtained—there is thereby created a cooperative esprit de corps that cannot be duplicated by any other means. The clinical history is to be critically reviewed, therefore it must be accurate and comprehensive; the laboratory findings will be checked; they must be carefully made, recorded

*Read at the Fortieth Annual Meeting of the Association held in New York City, November 7-9, 1929.

and interpreted; the medical treatment and management will be scanned, they must be wise and useful; the operations, their technique, their justification and efforts are to be made an open book, they must be conservative, skillful and purposeful. Every patient is a potential death, the actual death under the above conditions becomes not a total loss, but an occasion for careful review and increase of helpful experience and knowledge. The whole staff is leavened by such a system and patients are manifestly much safer and more carefully cared for because of its existence.

Once this custom becomes firmly established, the actual number of necropsies is only important as it affects the numerical size of the pathology staff and the number of students who may be accommodated. With approximately 600 cases each year our staff has three permanent members and two first assistants and we are able to afford ample opportunities to eight fellows, each serving six months, or a total of sixteen fellows each year.

The problem of who shall solicit the permission is largely governed by local conditions. With us, the graduate fellows make the initial effort and the entire laboratory and clinical staff are expected to lend assistance and counsel if necessary. The important point is to be certain that in every instance no legitimate effort is spared to accomplish the desired result and that the entire group agree to cooperate in whatever system may be established.

2. THE EXAMINATION ITSELF. Whether this be carried out in the hospital or an undertaking establishment it should be made in an adequately lighted and furnished room. The room should be clean and orderly and during the entire procedure a due decorum should govern every single individual who is present. Visitors should not be encouraged and I am even inclined to deprecate the performance of postmortem examinations as a demonstration procedure. The same or even greater measure of privacy and respect should be accorded to our dead during this operation as is demanded and given to the living during their operations.

The actual examination with us is made by the fellows, always under the close supervision and direction of a senior member of the staff. Each fellow serves three months as a junior, during which time he and his confreres examine the organs as they are removed, prepare the gross and microscopic specimens and see to it that the table and the room are kept as clean and neat as is possible. They attend to these various duties in rotation, e.g., one fellow will be responsible for examination of the heart during a certain period, another the lungs, etc.

The following three months junior fellows become senior fellows and secure permission, perform the necropsy and write up the description of the gross and microscopic lesions, assuming these duties also for stated periods.

The exact method of making the examination is again not so important as that there be a method and that the method be thoroughly mastered and carefully followed. During the entire procedure the senior staff member is present. He directs technique, points out lesions, dictates the list of diagnoses and fills out the death certificate. For upon him falls the responsibility of later reporting the results and their significance to the relatives, and reviewing these results with the clinical staff.

3. GROSS AND MICROSCOPIC SPECIMENS. The future value of a postmortem examination is largely negated if no serious attempt is made at the time of the examination properly to preserve gross and microscopic material for further study. It is not sufficient to place whole organs or sets of organs in a large jar of formalin with the thought that sometime later they may be utilized for further research. We are accustomed to select carefully and section properly small bits of tissue which, without further trimming, may be embedded in paraffin. These are placed in small bottles of preservative on which permanent numbers are etched. Not more than three different specimens are placed in one bottle and a careful record is made of the tissue which these specimens represent. As many bottles as are necessary are employed for this purpose. This enables one to identify any microscopic section that has been cut and stained, as to its source and perhaps even the reason for its preservation. At the same time slightly larger bits of tissue are placed in a stock bottle of 10 per cent formol to serve as a reserve supply. Special fixatives for special purposes are used in other bottles and a careful record is made.

We have found that it is absolutely necessary for proper preservation of gross specimens to section and carefully prepare the material at the time of the necropsy. No attempt is ever made to preserve large viscera in toto. Appropriate slices or specimens so prepared as best to expose the lesion are placed at once in a jar of Kaiserling solution. Membranes and thin structures are fastened to cork boards by glass pins. These specimens are later transferred to the museum preparation laboratory for further preservation and display. Photographs are made of gross specimens, usually after they have been well preserved, but if necessary the fresh specimens can be photographed at once. Careful attention to small details at the time of the examination repays itself later a thousandfold.

4. **THE PRESERVATION OF THE BODY.** This would seem to be largely outside of our domain, but in reality it constitutes a vital and very important part of our work. It is absolutely necessary that the remains of the deceased as they are finally presented to the relatives shall be without evidences of mutilation, and properly embalmed. This can only be accomplished by the pathologist keeping constantly before him the needs of the embalmer. His plan of performing the postmortem must take into consideration the preservation of the large arteries leading to the head and limbs. No unusual procedure must be carried out on the body without consultation beforehand with the embalmer, in order that in the end his work may not receive too great an interference. Such consideration shown to the embalmer tends to secure his cooperation and once that is secured there rarely arise complaints from the relatives because of the examination that the pathologist has made.

5. **STUDY OF THE MATERIAL.** At the postmortem table the pathologist makes a sincere effort to diagnose the lesions which are presented by the gross examination. These are later to be checked and amended by the results of the microscopic and bacteriologic studies made upon material removed at the time of the necropsy. This checking should be carried out as rapidly as possible, in order that the final report on the results of the examination can be given to everyone concerned. It is especially desirable that the final diagnoses be cross indexed, that future studies on any phase covered by these examinations may be readily carried out.

6. **PRESENTATION OF MATERIAL.** At definite intervals, at a meeting of the staff and the fellows, the clinical and pathologic summaries of the cases which have been examined should be presented. For the sake of brevity and clarity, it is well to condense the clinical history into a resume which states only the essential facts and have this exhibited to the meeting by a lantern slide. The clinical data are then expanded if desirable, by those who attended the patient during his lifetime and afterwards the pathologist presents in the briefest possible manner the essential facts of the postmortem examination, the pictures of the gross specimens, and demonstrations by a microscopic projector, of the histologic lesions. This last is very important. A special lantern is necessary and when this demonstration is properly carried out by the use of well stained sections it constitutes one of the most valuable adjuncts to the meeting. Discussion on the part of both the clinician and the pathologist is limited to bringing out those facts resulting from the study of the case which would seem to be of value in the handling of future cases or

of interest because of their scientific importance. It is at this meeting that the third group, including the staff members, receive their instruction. This meeting should be so comprehensive and thorough in the review of cases that it is unnecessary for the staff members to spend extra time attending the postmortem examination.

At this meeting, also, the gross specimens, properly prepared and labeled, may be presented for inspection and study either before or after the cases are discussed. We coat these gross specimens with a 15 per cent solution of gelatin, spread on them hot by means of a brush, thus preserving their sheen and color, preventing them from undue drying and removing to a large extent the formalin and other disagreeable odors. The placing of the specimens on a high table, well lighted and neatly arranged, adds to the invitation which they present for close inspection on the part of members of the staff.

For those members of the pathology division and others who may be interested, we add two other demonstration hours. One is devoted to a presentation of the gross pathologic anatomy and a review of its relation to the clinical symptoms. The other is devoted to a more extensive demonstration of microscopic lesions and discussions of their significance.

7. SPECIAL WORK BY STUDENTS. Each fellow, as has been seen, is expected to carry out a reasonable amount of routine work in connection with the securing of the permission, examination of the body, and the preservation and description of material. In addition, however, this period of the student's activity presents an admirable opportunity for devoting special attention to some particular phase of the study of human pathology in a more intense manner than is carried out during the routine examination. In our school there is required on the part of each member of the fellowship staff the selection of some organ or tissue or system of the body for special study and research and once each quarter, at a seminar, a report of the results of this study is made to the members of the division. If the subject lends itself to museum demonstration he is encouraged to arrange a museum exhibit. These studies often form the basis for his thesis, for publication or presentation of his work before the general staff. Under any circumstances he acquires special knowledge in a special field, with the opportunity of exercising his investigative activity to the fullest possible extent. As a means of testing this side of the student's abilities I know of no more valuable method.

The character of the study which is undertaken is determined to a certain extent by the length of time that the student is able to devote

to the subject. Those who are preparing to enter the field of pathologic anatomy as professional pathologists are urged to undertake more elaborate and fundamental studies than those whose time is limited by the necessity of returning to clinical fields.

This division must furthermore furnish facilities for fellows or staff members from other fields, such as urology, otolaryngology, neurology, etc., to study the pathologic phases of their problems. It is also understood that fellows in the division of pathologic anatomy, especially those who intend to teach and practice pathology, should have experience and opportunities for research in the allied branches of this subject, such as clinical, surgical or experimental pathology.

Conclusion

A division of pathologic anatomy organized and operated along the lines which have been indicated thus serves to fulfill the needs of the three groups of physicians who are concerned with acquiring further knowledge of the disease processes of the human body. Group 1, the professional pathologists, are marked by spending more time with the department, selecting more fundamental subjects requiring a more extensive investigation and, further, by appointment as first assistants in the latter part of their course, thus gradually passing from the domain of the student to that of the preceptor. They thereby acquire experience in teaching, an accomplishment which the successful pathologist must develop at every opportunity.

Group 2, at the end of the six months, are able to expertly perform a postmortem examination, to conserve properly the microscopic and gross material, to describe succinctly and accurately the character of the gross and microscopic appearance of the lesions observed and to diagnose correctly the usual forms of disease which may be seen in the body. They are thus enabled to carry over to their clinical work fairly clear-cut pictures of pathologic manifestations. In addition they have acquired special knowledge concerning some particular organ or disease.

The third group is given every opportunity for enlarging the information which they have obtained clinically by the additional knowledge of gross and microscopic pathologic anatomy.

As the years go by, a department carried on with some such system and organization becomes an invaluable adjunct to the entire staff, as an original source of records with illustrative material of an increasing variety of the lesions which disease may produce.

Medical Education in England

W. T. DAWSON

Professor of Pharmacology, School of Medicine, University of Texas

The medical schools of Oxford and Cambridge have for about seven centuries conferred degrees in medicine. They now specialize in research in the preclinical subjects and arrange excellent training in these, so that students may take degrees in physiology, zoology, pathology, etc. For clinical work most of their students resort to the great London hospital medical schools, and return to their old schools to take their final examinations. Twelve hospital medical schools in London give complete courses in medicine. Several others give only the clinical subjects. Some forty other hospitals, including an orthopedic hospital, an ear hospital, four eye hospitals, three hospitals for nervous diseases, and so on, give undergraduate and postgraduate clinical instruction in one or more subjects.

The major medical schools of London are affiliated with the University of London, which may therefore be said to possess not one medical school but several, but actually this University exercises only a very loose control, having been chartered in 1836 as a coordinating and examining corporation for a great number of very diverse educational institutions in the British metropolis and elsewhere. The medical school in London belongs rather to the hospital with which it is connected, and which brought it into existence in order to solve educational and administrative difficulties.

Outside London there are in England only seven schools giving the complete medical course. These are situated in one or other of the large, so-called provincial cities, such as Manchester, Sheffield and Liverpool, all in connection with universities.

Nonteaching Institutions Which Grant Degrees

Three other nonteaching institutions, which, nevertheless, have the power of appointing examiners, collecting fees and granting medical diplomas, should be mentioned. The Royal College of Physicians, of which William Harvey was for a short time president in 1654, was founded in 1518 by Thomas Linacre, a graduate of Oxford and of Padua in Italy. It appears originally to have resembled very much in organization the present College of Physicians in Philadelphia. Together with the Royal College of Surgeons, organized from the

then Corporation of Surgeons about the year 1800 largely for the purpose of taking over and adding to John Hunter's collection of specimens, the Royal College of Physicians maintains a medical examining board. This board grants the diploma of M.R.C.S., L.R.C.P., member of the Royal College of Surgeons, licentiate of the Royal College of Physicians, and is commonly known in medical circles under the name of the "conjoint board."

A license to practice medicine may also be obtained by passing the examinations of the Society of Apothecaries of London and obtaining the diploma of licentiate (L.S.A.). University degrees may, of course, also be obtained, and it is no uncommon thing for medical men to possess both the diploma of the conjoint board and the medical degree of a university, although only one of these is actually necessary in the eyes of the law as a qualification for medical or surgical practice.

Those intending to specialize in surgery, or to teach anatomy, frequently take a further examination in surgery and related subjects from the Royal College of Surgeons, and if successful, are admitted as fellows (F.R.C.S.). Prospective specialists in internal medicine write a similar set of examinations in medicine and related subjects and may obtain the full membership in the Royal College of Physicians (M.R.C.P.). The fellowship in this latter body is purely honorary. In order to obtain a doctorate, some diplomates of the conjoint board study for a further year in Belgium and write examinations for the degree M.D. (Bruxelles).

It was not till about 1830, or later, that the London hospitals began to give systematic medical courses of a similar order of completeness to those given today. Prior to that time, for example, anatomy might be studied in a private school, and the fees paid by students in other subjects also went directly to their teacher rather than to the hospital.

General Medical Council

The standards of medical education are set by the General Medical Council, an official body, on which the profession has six elected and still other appointed representatives. Every medical student and every practitioner must be registered with the council. For conduct termed "infamous in a professional respect," offenders have their names removed from the register and lose the right to practice.

The University of Cambridge is noted even today for its physiologists, as though it were not enough fame for one school to have had William Harvey as a student. Here Harvey received his B.A. degree in 1597. He obtained the M.D. degree from the University of Padua

in 1602, so that even this eminent man appears to have been a five-year student! But as in those days so also even now on the other side of the water it is frequently the best students who linger longest over their medical courses.

Qualifications for Entrance to Medical School

English medical students, as a rule, start the medical course a little younger than American. Probably 17-19 years is the usual age. The General Medical Council forbids registration before the age of 17. Any student who has passed the entrance examinations into a University approved by the General Medical Council is eligible to enter medical school. The secondary schools in England and, in fact, pretty generally in European countries often cater specially to the student who intends to enter a profession, and unlike American and Canadian high schools do not often attempt to discharge a multitude of other functions. They give a great deal of the work which with us is given in the first two years in universities.

Education in these densely populated countries is taken even more seriously than with us by the student of limited means. There is practically no way of working one's way through college, far less medical school. There are few jobs of any kind or description in the community which are not already filled, and with a waiting list besides. Consequently, the only way to get money to help in one's education is to be a good student and win a scholarship by leading the class in some subject in entrance examinations to University or in various subjects in medical school. Wealthy students who win scholarships are expected to be "good enough sports" to resign them. The hard work begins right in the secondary school for the student who needs a scholarship. Starting at the age of, say, 16, he specializes in biology or in chemistry and physics. His teachers encourage him and give him special attention. By the age of 18 he is ready for entrance to the medical school of a university, and may be lucky enough to win a scholarship of, say, \$375.00 a year for three years. When he is ready for his clinical work, he may win another scholarship by writing a good paper in one of his preclinical subjects, in an examination set by the hospital authorities. If he is not an exceptionally good student he has about the same hope of getting financial assistance from college or medical school as the proverbial cotton dog had of catching the asbestos cat in the fires of the infernal regions.

Premedical Work in Medical Schools

Because of the inevitable variation in extent and excellence of pre-

liminary preparation, the medical schools, as a rule, give their own premedical work. By intensive methods they may compress into about six months the required work, which is entirely in physics, chemistry and biology. Occasionally students who produce evidence that they have done equivalent work before entering medical school are excused one or other of these subjects and allowed to begin dissection in order to fill up their time. This premedical work includes some which is regarded as medical with us; for example, the biology may include what amounts to a pretty stiff course in parasitology.

The Preclinical Work

The second part of the medical course occupies about twelve months. It includes the same subjects as with us, with the exception of pathology and bacteriology. These are regarded as being of such definite clinical importance that they should be studied during the clinical years. Gross anatomy is given a good deal of attention, and so far as I know no English or European medical school has ventured to condense the time devoted to its study to as short a period as is permitted in some American schools. No separate examination is set in biochemistry, histology or embryology. The preclinical examinations ordinarily given are three—anatomy, physiology and pharmacology.

The Clinical Work

In the third part of his course the student begins with intensive work in physical diagnosis for a few days or weeks, and goes on with a clinical assignment in medicine or surgery, according as there is opportunity for him to work in one or other clinic. Along with a small number of other students he is placed under one of the visiting surgeons or physicians of the hospital for general direction, and he is also directed or advised in his work by the senior students or house physicians or surgeons at work in the clinic or ward. In some hospitals he is supposed to attend lectures, in others this is not compulsory. But students must do the ward, clinic or laboratory work to which they are assigned by the Dean, or the chief or professor will refuse to sign the certificate for satisfactory performance of such work, which is indispensable in order to be eligible for examination.

The students continue in this clinical routine for about three years, and when they have completed to the satisfaction of their chiefs all the necessary assignments, they obtain certificates to that effect, and are eligible for final examinations. They may choose to be examined by the university at which they originally matriculated, or by the

Conjoint Board of the Royal Colleges of Physicians and Surgeons, or by the Society of Apothecaries of London, despite the fact that these latter bodies had no hand in their education. There are three final examinations, in medicine, surgery and obstetrics; but some of the universities set a final paper in pathology and bacteriology, and one also in legal medicine and public health. In most examinations no grades are published, only the names, with the comment "Passed."

System of Examination

The system of examination differs in several points from ours. In the first place the number of examinations set for the whole medical course is much smaller, and, depending on the institution examining, may be as low as ten examinations altogether for a total of fifty-one months or more of actual work. As far as passing is concerned, nothing counts either for or against the student but what he makes in these examinations. The percentage of failures is, therefore, large, and 40 per cent of failures is commonly met with in certain examinations, even in finals. Such failure does not debar the student from taking an examination again next time it is given, without repetition of the course, provided he pays the reexamination fee, which may amount to about \$30. He can keep on in this way for years if he wants to, and if his money holds out. A student who fails in one subject of a set, e.g., anatomy or medicine, may or may not be credited with a failure in the whole of that set of examinations, according to the rules of the examining body.

The Examiners

The examiners are not as a general rule his teachers, although one may be, and this varies from school to school and from time to time. There are usually two in each subject and they may both be complete strangers to him, teachers at some other school, while his own teachers are examining elsewhere. Thus, in one school the examiner in a certain subject was not seen till the day for the oral examination, and was unknown even by name to some of the students who went in to be questioned. So that one of the anxious ones waiting outside for his turn inquired of a friend making his exit as to who were the examiners. The friend, who had evidently read "Alice through the Looking Glass," replied "The Walrus and the Carpenter." Perhaps it was because he felt that the oral examiners had turned with undue frequency from one topic to another.

Possibly you will recall the verses of Tweedledee, relating to the excursion along the seashore of the youthful and trusting little oysters,

enticed to their destruction by the melancholy, deceitful and greedy Walrus and his equally voracious friend, the Carpenter. And how when the promenade had come to an end the Walrus, very much in the style of an oral examiner, began his sacrificial oration.

"The time has come," the Walrus said,

"To talk of many things,

Of shoes—and ships—and sealing wax—

Of cabbages—and Kings—

And why the sea is boiling hot—

And whether pigs have wings."

Outside Examiners

The outside examiner system has been given some trial in this country, especially at Swarthmore College. There appears very little valid objection to men actively engaged in teaching, practice or research being appointed from year to year by medical schools also as impartial examiners in the fields of their interest. Teachers might be interested in the opportunity of visiting other medical schools, and supervising the examination of students who had been taught by others.

Internship

Internship is not compulsory in England owing to practically three years being devoted to clinical work. There is no upper time limit on the medical course. A student may take fifty years if he wishes. It will not be likely to worry anyone but himself, or the person who is paying his fees of about \$250.00 a year. Horder tells of a student who took twelve years to complete his course. He says, "I remember the student I coached for the longest time when I was a demonstrator. I coached him so long that I feared for my reputation and declined to coach him any more. Then I yielded to his father's solicitations, and coached him again, a little fascinated, I think, by the peculiar difficulty of the case. Twelve years this particular "chronic's" curriculum lasted. My pupil turned out to be a most excellent doctor and a very successful one. When I saw him a few years after he left the hospital, he had an assistant and a very thriving practice. Nor do I attribute his success to his having married the undertaker's daughter in the town in which he set up his plate. I attribute it rather to a considerable knowledge of the world, an unvariable courtesy, a cheerful manner, a gentle voice and a resourceful mind. In the hospital wards I have seen him talking familiarly with the old folks, and little children, when he approached them, would drop their dolls to smile at him."

Attendance in More Than One College

It is possible for a student to complete a large part of his medical course in one or several other institutions than that which gives him his medical degree or qualifications. He may even go to another country to study for a time. Some years ago it was possible, and probably still is, to complete part of the human dissection in Paris and have the work accepted in England. In Continental schools even more striking freedom may be found. For example, students from a German speaking part of Switzerland might, while still undergraduates, do a year of clinical work in a French medical school in order to acquire a French medical vocabulary for use in later practice and consultation. They would return to their Swiss University to be examined on the work they had done in France.

"Coaches" and "Crammers"

There is in England a diminishing number of coaches or crammers, who for a more or less easy monetary consideration, teach the systematic and rapid memorizing of examination material. Basing themselves on the questions asked in various university or other examinations during previous years, the crammer outlines his procedure. By working his men to the limit he succeeds in filling temporarily each separate cranium as full as possible of the subject material. On the day of examination each is literally bursting with information, sometimes very strangely muddled up and probably forgotten with even greater speed than acquired.

The crammer may not be a great scientist, but he knows that the soul (?) of memory is 99.9 per cent repetition. He has all the ancient mnemonic tricks, such as "The Army goes over the bridge, and the Navy goes under it," for the crossing of the scapula by the suprascapular nerve and artery, or "To the elbow I go and from the knee I flee" for the direction of the entrance of the nutrient arteries into the long bones, or what is said to have been Huxley's mnemonic, "I always remember that the mitral valve is on the left side of the heart, because bishops wear mitres and bishops are never right." He may use histrionic devices to focus attention, such as requiring some member of the class, selected for his gorgeous so-called "Oxford" accent, or perhaps for his exceptional dignity of carriage, to stand upon his chair and bellow out one of the foregoing rather unexciting observations. One of these coaches some years ago used to give most amusing impersonations of the lecture manner of various eminent British professors,

and his students swore that his class sessions often far surpassed anything on the vaudeville stage.

No Fraternities in English Medical Schools

Fraternities do not exist in English medical schools or universities. Their place is taken at Oxford or Cambridge by the colleges, of which there are about twenty at each. Medical students at either of these universities find time to engage in athletics, or rather to "play games," as the English would say. Since each college has at least two football teams, not to mention teams for numerous other sports, getting on a college team does not assume the proportions of a heroic achievement; it may in fact sometimes be merely unavoidable. Medical students have even been known to play on university football teams, and some years ago one of the London hospitals had a football team, made up largely of former "football stars" studying there, which decisively defeated a first class university team. Some of the London hospital medical schools have clubhouses and athletic fields in the suburbs.

Degrees

English and Irish universities give the Bachelor of Medicine degree to those who pass their final examinations. For the Doctorate a thesis must be presented, and at Cambridge this is necessary for the Bachelor's degree also. The thesis is, as a rule, to be on or involve some disputed point. Thus Rolleston says that a professor of medicine at Cambridge once rejected the title submitted for a projected thesis "That's mother's milk is the best food for infants," because he said that that proposition did not admit of any argument. Scotch universities award the M.D. degree very much as here, and it is interesting to note that the first medical school to be founded in this country, that of the University of Pennsylvania, was founded by two graduates of Edinburgh.

Animal Experimentation

Unreasonably stringent laws are in force in England regarding the use of such animals as cats and dogs for experimental purposes. Thus fifty thousand stray dogs are said to be destroyed annually in London by dog catchers, and the regulations prevent their being made available, as they should be, for work in which students learn in this country the methods and dangers of anesthesia and acquire no small amount of information regarding operative surgery. It appears absurd to us that students should do their first work of this kind chiefly on the sick, but such is the almost inevitable result. There is a movement

to have these restrictions removed. It is greatly to be hoped that these efforts succeed.

Finances

During the war and for some years afterward the tremendous burden of taxation which still persists, and a general upset in private finances, made it difficult for the schools to obtain the necessary funds not only for improvement of facilities but at times also even for mere maintenance. University College school has received aid from the Rockefeller funds. In most schools the financial stringency is now being to some extent at least relieved, new laboratories and clinics are appearing, and the medical institutions of Great Britain being placed in a position still more worthily to train and represent a medical profession which has numbered among its members many great men.

Analysis of Entrance Credentials Presented by Freshmen Admitted in 1929

FRED C. ZAPFFE

Secretary, Association of American Medical Colleges

In the July, 1929, issue of the JOURNAL was published an analysis of the credentials submitted by the freshmen entering 73 medical colleges in 1928. It was stated that this study was based on the data submitted by each student to the Council on Medical Education and Hospitals of the American Medical Association. Through the kindness and courtesy of Dr. Colwell, secretary of the Council, it was possible to continue this study and to analyze the credentials of the students entering in 1929.

Many extremely interesting deductions can be drawn from the data presented herewith and the results of the study made by Dr. B. D. Myers, published in the January, 1930, issue of the JOURNAL. Speculation may run riot as to the probable or possible causes which might explain certain figures, but one fact is outstanding, that those wishing to enter on the study of medicine are not worrying about high entrance requirements.

Whether this urge is chargeable to a desire for more knowledge or to ensure admission to a medical school is a debatable question. I have talked to many premedical students, and as a result of what they are doing and their reasons for doing so, I am of the opinion that the majority of them are in search of a better preparation before entering on the study of medicine rather than a greater number of credits to ensure registration in a medical school. However, the purpose of this study is merely to present figures which can be considered as being accurate inasmuch as they are based on information received from the students themselves and transmitted by the office of the dean of the medical school.

The 76 schools concerned in the study matriculated 6,369 freshman students in the Fall of 1929, the largest freshman class in the history of medical education in the United States.

Two schools demand a degree for admission. Thirteen schools demand 90 college hours for admission; 3 schools demand 72 hours; the remainder demand credits which can be met by two years of attendance in premedical courses.

School	No. in Class	Entrance Requirements Semester Hours	2 Years		3 Years		Degrees						4 Years No Degree	
							AB		BS		Others			
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Alabama.....	52	60	7	13.4	17	32.6	18	34.6	8	15.3	1	1.9	1	1.9
Arkansas.....	49	60	21	42.8	15	30.6	10	20.4	1	2.0	.....	.....	2	4.0
Med. Evangelist..	119	64	62	52.1	28	23.5	21	17.6	4	3.3	2	1.6	2	1.6
Stanford.....	52	90	.....	.....	35	67.2	13	25.0	1	1.9	1	1.9	2	3.8
California.....	59	90	.....	.....	45	76.2	8	13.5	5	8.4	1	1.6	.....	.....
So. California....	55	90	.....	.....	24	43.6	24	43.6	4	7.2	2	3.6	1	1.9
Colorado.....	54	60	13	24.0	24	44.4	9	16.6	3	5.5	2	3.7	3	5.5
Yale.....	46	90	1*	2.1	9	19.5	19	41.3	13	28.2	4	8.7	.....	.....
Georgetown.....	142	60	68	47.8	12	8.4	27	19.0	25	17.5	7	4.9	3	2.1
Geo. Washington..	88	60	16	18.1	34	38.6	14	15.9	14	15.9	1	1.1	9	10.2
Howard.....	58	60	4	6.8	7	12.0	24	41.3	16	27.5	1	1.7	6	10.3
Emory.....	54	60	13	24.0	23	42.6	6	11.1	9	16.6	1	1.8	2	3.7
Georgia.....	38	60	17	44.7	8	21.0	2	5.2	9	23.6	1	2.6	1	2.6
Loyola.....	146	60	55	37.6	35	23.9	14	9.5	31	21.2	6	4.1	5	3.4
Northwestern.....	125	65	19	15.2	50	40.0	34	27.2	18	14.4	4	3.2	.....	.....
Chicago.....	116	Degree	.....	.....	.....	.....	58	50.0	52	44.9	6	5.1	.....	.....
Illinois.....	172	60	94	54.6	56	32.5	13	7.5	4	2.3	2	1.1	3	1.7
Indiana.....	119	60	56	47.0	26	21.8	24	20.1	2	1.6	4	3.3	7	5.9
Iowa.....	153	60	76	49.6	56	36.5	11	7.1	5	3.2	4	2.6	1	0.6
Kansas.....	71	60	18	25.3	29	40.8	13	18.3	5	7.0	1	1.4	5	7.0
Louisville.....	89	60	25	28.0	26	29.2	24	26.9	11	12.3	1	1.1	2	2.2
Tulane.....	133	60	54	40.5	32	24.0	24	18.0	18	13.5	.....	.....	5	3.7
Johns Hopkins....	68	Degree	.....	.....	.....	.....	44	64.7	22	31.9	2	2.9	.....	.....
Maryland.....	125	60	2	1.6	27	21.6	29	23.2	38	30.4	23	18.4	6	4.8
Boston.....	65	60	5	7.6	12	18.4	26	39.9	15	23.0	3	4.6	4	6.1
Harvard.....	148	60	1	0.6	6	4.8	100	67.0	30	20.2	9	6.0	2	1.0
Tufts.....	135	60	65	48.1	25	18.5	24	17.7	16	11.8	1	0.7	4	2.9
Detroit.....	91	60	1	1.0	37	40.6	37	40.6	12	13.1	.....	.....	4	4.3
Michigan.....	159	60	12	7.5	68	42.7	55	34.5	17	10.6	2	1.2	5	3.1
Minnesota.....	102	60	41	40.1	33	32.3	15	14.7	4	3.9	3	2.9	6	5.8
Mississippi.....	38	60	21	55.4	8	21.0	4	10.5	2	5.2	3	7.8	.....	.....
St. Louis.....	144	60	33	22.9	40	27.7	24	16.6	35	24.3	4	2.0	8	5.5
Missouri.....	30	60	3	7.6	24	61.5	7	17.9	2	5.1	.....	.....	3	7.6
Washington.....	82	90	.....	.....	34	41.4	37	45.1	6	7.3	3	3.6	2	2.4
Creighton.....	95	60	43	45.2	23	24.2	12	12.6	11	11.5	6	6.3	.....	.....
Nebraska.....	97	65	30	40.2	23	23.7	15	15.4	12	12.3	4	4.1	3	3.0
Dartmouth.....	22	86	.....	.....	12	54.5	8	36.3	1	4.5	.....	.....	1	4.5
Albany.....	35	60	.....	.....	16	45.7	11	31.4	6	17.1	.....	.....	2	5.6
Columbia.....	113	72	.....	.....	14	12.3	72	63.7	19	16.8	5	4.4	3	2.6
Cornell, N. Y.....	37	90	.....	.....	2	5.3	23	62.1	9	24.3	2	5.3	1	2.7
Cornell, Ithaca....	24	90	.....	.....	10	41.6	9	37.5	4	16.6	.....	.....	1	4.1
Long Island Coll..	130	72	9	6.4	38	29.2	32	24.5	46	35.3	2	1.5	3	2.3
N. Y. Homeop.....	94	60	4	4.2	26	27.6	10	10.6	44	46.8	1	1.0	9	9.5
Syracuse.....	51	60	5	9.8	20	39.2	18	35.2	2	3.9	3	5.8	3	5.8
N. Y. University..	130	72	.....	.....	29	22.3	35	26.9	64	49.2	.....	.....	2	1.5
Buffalo.....	78	60	33	42.3	23	29.4	6	7.6	10	12.8	6	7.6	.....	.....
Rochester.....	47	90	.....	.....	6	12.7	26	55.3	13	27.6	1	2.1	1	2.1
No. Carolina.....	41	60	1	2.4	12	29.2	17	41.4	6	14.6	2	4.9	3	7.3
Wake Forest.....	26	65	1	3.8	13	49.9	6	23.0	5	19.2	.....	.....	1	3.8
No. Dakota.....	30	60	4	13.3	13	43.3	4	13.3	5	16.6	1	3.0	3	10.0
Ohio.....	101	60	15	14.8	32	31.6	30	29.7	9	8.9	4	3.9	11	10.3
Cincinnati.....	92	60	29	31.5	27	29.3	25	27.1	6	6.5	2	2.1	3	3.2
Western Reserve..	70	90	.....	.....	2	2.8	46	65.7	21	30.0	1	1.4	.....	.....

*Also has D.D.S.

No.	4 Years No Degree	School	No. in Class	Entrance Require- ments Semester Hours	2 Years		3 Years		Degrees						4 Years No Degree	
									AB		BS		Others		No.	%
					No.	%	No.	%	No.	%	No.	%	No.	%		
1	1.9	Oklahoma.....	75	60	30	40.0	19	25.3	14	18.0	7	9.3	2	2.6	3	4.0
2	4.0	Oregon.....	64	90	.....	.....	27	42.1	11	17.1	14	21.8	2	3.1	10	15.6
2	1.6	Hahnemann.....	135	60	68	50.3	24	17.7	7	5.1	16	11.8	7	5.1	13	9.6
2	3.9	Jefferson.....	158	60	.....	.....	36	22.7	53	33.5	60	37.9	3	1.8	6	3.7
1	1.6	Temple.....	121	60	13	10.7	31	25.7	35	28.9	37	30.5	1	0.8	4	3.3
3	5.5	Phillipine.....	85	60	80	94.1	5	5.8	.....	.....	.....	.....	.....	.....	.....	.....
3	9.1	Pennsylvania.....	110	90	.....	.....	21	19.0	50	45.4	37	33.6	1	0.9	1	0.9
9	10.2	Pittsburgh.....	68	60	31	45.5	14	20.5	3	4.4	17	25.0	.....	.....	3	4.4
6	10.3	Woman's Med.....	39	60	6	15.3	10	25.6	15	38.4	5	12.8	1	2.0	2	5.0
2	3.7	So. Carolina.....	43	60	7	16.2	13	30.2	6	13.9	16	37.2	1	2.3	.....	.....
1	3.6	So. Dakota.....	22	60	4	18.1	5	22.7	9	40.9	2	9.0	.....	.....	2	9.0
5	3.4	Mcharry.....	70	60	1	1.4	6	8.5	36	51.4	25	35.7	.....	.....	3	2.8
.....	.....	Tennessee.....	119	60	45	37.8	32	26.8	18	15.1	17	14.2	3	2.5	4	3.3
.....	.....	Vanderbilt.....	50	90	.....	.....	13	26.0	23	46.0	10	20.0	2	4.0	2	4.0
.....	.....	Baylor.....	112	60	28	25.0	40	35.7	22	19.6	7	6.2	1	0.08	14	12.5
.....	.....	Texas.....	101	60	22	21.7	37	36.6	35	34.6	2	1.9	1	0.9	4	3.9
.....	.....	Utah.....	29	90	.....	.....	12	41.2	6	20.6	3	10.3	1	3.0	7	24.1
.....	.....	Vermont.....	51	72	16	31.3	22	43.1	1	1.9	7	13.7	1	1.9	4	7.8
.....	.....	Med. College, Va.....	108	60	33	30.5	23	21.2	16	14.8	22	20.3	6	5.5	8	7.4
.....	.....	Virginia.....	63	60	15	23.9	20	31.7	6	9.5	16	25.4	1	1.6	5	7.9
.....	.....	West Virginia.....	65	64	18	27.6	27	41.5	13	20.0	5	7.6	.....	.....	2	3.0
.....	.....	Marquette.....	72	64	35	48.6	19	26.2	7	9.7	6	8.3	2	2.7	3	4.2
.....	.....	Wisconsin.....	110	60	24	21.8	50	45.4	10	9.0	9	8.1	5	4.5	12	10.9
.....	.....		6369		1462	23.1	1752	27.5	1613	25.3	1090	17.1	186	2.9	265	4.1
.....	.....								2889		45.2					
.....	.....								3154							
.....	.....										48.9					

The 186 students presenting "Other Degrees" gave the following:

GROUP 1

A.B. & B.S.....	19	B.S. & Ph.D.....	1	A.B. & M.S.....	7	A.A.....	1
B.S. & M.S.....	8	B.S. & C.A.R.....	1	B.S. & Ph.B.....	1	B.S., M.A., Ph.D.	1
Ph.B.....	26	A.B. & A.M.....	18	M.S.....	1	B.A., M.A., B.S.	1
B.S. & M.A.....	5	B.S., M.S., Ph.D.....	1	A.B. & Ph.D.....	1	Ph.M.....	1

GROUP 2

B.Ed.....	2
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GROUP 3

Ph.G.....	52	Ph.C. & B.S.....	6	B.S., Ph.C., Ph.G., D.D.S.....	1		
Ph.G. & B.S.....	4	B.S., M.S., Sc.D.....	1	B.S. & P.Rh.....	1	B. Che.....	1
Ph.C.....	5	Ph.C. & Ph.G.....	1	Ph.G. & A.B.....	1	B.C.S. & B.S.....	1

GROUP 4

C.E.....	1	B. of Accounts.....	1	M.E.....	1	D.M.D.....	1
D.D.S.....	4	L.D.S. & R.C.S.....	1	A.B. & B.D.....	1	B. Humanities.....	1
B.Pe.....	1	B.S. & D.D.S.....	1	B.Mus.....	1		
D.D.S. & M.S.....	1	B.A., M.S., LL.B.....	1	A.B. & LL.B.....	1		

Nineteen schools did not admit any two year men; six of these schools demand the minimum, 60 college hours, for admission. Every medical school except one numbers degree men among its matriculates.

There is only a slight variation in the total results of 1929 and 1928 and no conclusion can be drawn from this variation.

	1928	1929
	%	%
60 hours	22.89	23.1
90 hours	30.75	27.5
Degrees	42.18	45.2
120 hours, no degree	4.12	3.7

The slight difference in the percentage figures in favor of graduation before entering on the study of medicine could be interpreted as indicating a desire for better preparation—or an endeavor to present “rejection proof” credits for admission, as one wishes. Many years of contact with medical students has convinced me that, on the whole, more so today than ever before, the medical student knows what he is after and tries to get it. He consults freely with his elders as to what road it is best for him to travel. Unfortunately he does not always receive the best advice, or even good advice, but he aims at achievement and not mere credits.

Laws of New York

AN ACT to amend the education law, in relation to admission to examination for license to practice medicine.*

Section 1. Subdivision 4 of section 1256 of chapter 21 of the laws of 1909 entitled "An act relating to education, constituting chapter sixteen of the consolidated laws," as amended by chapter 140 of the laws of 1910, such section having been added by chapter 85 of the laws of 1927, is hereby amended to read as follows:

4. Has completed not less than four satisfactory courses of at least eight months each in a medical school in this country or Canada registered as maintaining at the time a standard satisfactory to the department, or in a medical school in a foreign country maintaining a standard not lower than that prescribed for medical schools in this state. In lieu of the first two years of such medical course the department may accept evidence of graduation with the degree of bachelor or doctor of dental surgery from a registered dental school in which the requirements for admission were the same as those prescribed for a registered medical school, and in which the course of instruction included all of the minimum requirements prescribed for the first two years of the course in a registered medical school. New York medical schools and New York medical students shall not be discriminated against by the registration of any school out of the state whose minimum graduation standard is less than that fixed by the statute for New York medical schools. The department may accept as the equivalent for any part of the third and fourth requirement, evidence of five or more years' reputable practice, provided that such substitution be specified in the license, and, as the equivalent of the first year of the fourth requirement, evidence of graduation from a registered college course, provided that such college course shall have included not less than the minimum requirements prescribed by the department for such admission to advanced standing. The department may admit conditionally to the examination in anatomy, physiology, and chemistry, applicants nineteen years of age, certified as having studied medicine not less than two years, including two satisfactory courses of at least eight months each in two different calendar years in a medical school registered as maintaining at the time a standard satisfactory to the department, provided that such applicants meet the second and third requirements of this section.

*Became a law March 24, 1930. Permits the adoption of the quarter system by medical schools.

Report of Committee on Medical Education and Pedagogics

The Committee considered a large number of letters from the deans of the various medical colleges, sent at the request of the Committee, who asked for recommendations in regard to the activities of the Committee for the present year. The vast majority of letters suggested that considerable difficulties were met with in connection with premedical requirements.

In this connection, it is the feeling of the Committee that we should look forward to acceptable medical schools or this Association assuming responsibility for the admission of students. The state boards of medical licensure would still have opportunity to examine candidates before they are licensed to practise medicine.

In connection with the matter of premedical requirements, the Committee realizes that course content rather than semester hours would be a much more satisfactory method of evaluating credits, but feels that at least for the present the minimum requirements must continue to be stated in the same terms as at present.

Letters from certain of the deans recommended that some of the courses given by medical colleges be standardized as to length and content. The Committee feels that it would be unwise to attempt any such standardization of the curriculum.

The reports of the Commission on Medical Education were discussed and the Committee recommends careful consideration of these reports by the members of this Association with the feeling that they contain much valuable material.

The Committee appreciates the splendid spirit of cooperation on the part of the Federation of State Boards of Medical Examiners in taking the initiative in recognizing the position of this Association in matters of medical education and, in this connection, makes the following recommendations:

Inasmuch as the following resolution was adopted by the State Boards of Medical Examiners at its regular annual meeting held in February, 1929,—“That in each state the Medical Practice Act and its administration conform as far as is possible with the educational principles of the Association of American Medical Colleges,” and,

Inasmuch as there have been adopted and incorporated in the by-laws of this Association certain clauses in reference to the admission of students to the medical colleges of the Association and in reference to the curriculum of the medical course itself, and,

Inasmuch as there does not seem to be at the present time adequate organization to meet these responsibilities,

It is recommended that the Executive Council of this Association consider the feasibility of setting up an administrative organization and executive force to carry out these responsibilities effectively.

Graduate Medical Education

The Committee recognizes the value of providing advanced medical education to the general practitioners and specialists by refresher courses—extension lectures, association meetings and other methods. It is felt that this type of education should be encouraged and extended. However, it is suggested that graduate medical education properly so called should be conducted in connection with one of the following systems:

1. Establishment of graduate schools of medicine by universities as distinct and separate entities from undergraduate schools.
2. The establishment of graduate courses by faculties of present medical schools.
3. The establishment of graduate courses by faculties other than medical in universities.

It is recommended that a consideration of the general principles governing the courses for graduate students be referred to the Committee on Medical Education and Pedagogics for the coming year, with the suggestion that the assistance of the Association of American Universities might be helpful in this connection.

It is recommended that the name of the Committee be changed from the Committee on Medical Education and Pedagogics to the Committee on Educational Policies.

(Signed) H. G. WEISKOTTEN, *Chairman*
 FREDERICK T. VAN BEUREN, JR.
 JOHN WYCKOFF
 E. STANLEY RYERSON

Report of Committee on the Definition of "Graduate" and "Postgraduate" Medical Study

At the annual meeting of the Association of American Medical Colleges held in October, 1927, a committee consisting of Drs. Ray Lyman Wilbur, Louis B. Wilson and Wm. Pepper was appointed to formulate comprehensive definitions of the terms "graduate" and "postgraduate" medical study.

This committee formulated two provisional definitions or statements concerning graduate medical study and one concerning postgraduate medical study (see appendix A). These were sent out by the Secretary of the Association to the chief officials of twenty-nine "Approved Graduate Medical Schools," listed in the *Journal of the American Medical Association*, with a request for comments, modifications or changes (see appendix B). Replies were received from sixteen of the schools.

The report of the committee, based on these replies, should have been made at the annual meeting of this Association held in 1928 but the material for it had been too long delayed in passage between members of the committee to

permit a formulation of the report at that time. The committee was therefore continued.

The following is a summary of the replies received from the Secretary's circular letter:

Of the sixteen school officials replying, one, a nonmedical official, "did not see the necessity for making a distinction between the terms 'graduate' and 'postgraduate'."

Eleven approved without modification the provisional definition No. 1 of the term "graduate." Two approved it but suggested modifying to omit mention of degrees. The remaining two preferred definition No. 2 but one of these suggested a modification which would have made it in effect the same as definition No. 1. The committee, therefore, recommends the adoption of provisional definition No. 1 of the term "graduate" medical study to read as follows:

GRADUATE MEDICAL STUDY: Graduate medical study is that carried out in a university in medical subjects by graduates in medicine. It is usually under the direction of the general graduate school, the graduate medical school, a graduate department of the medical school, or the school of public health or hygiene. It follows the usual methods of graduate study in other fields. Its chief characteristic is research, although much time may be devoted to advanced training in the art of medical specialties. Its usual minimum unit for university recognition is one year. It may lead to the granting of such degrees as Master of Arts or Science, Doctor of Public Health, or Doctor of Philosophy.

Concerning the term "postgraduate medical study," ten officials approved the provisional definition without modification. One approved it but suggested changing the word "characteristics" to "purpose." Three others approved but suggested omitting mention of diplomas or certificates. One approved but suggested omitting the second sentence. One approved but suggested changing the term to "postgraduation medical study" or to "advanced medical study."

Since three members suggested omitting mention of diplomas or certificates and since the Council on Medical Education and Hospitals of the American Medical Association has recommended that degrees, diplomas or certificates should not be granted for graduate or postgraduate medical work for a shorter period than one college year, the committee would recommend that the definition of "postgraduate medical study" be stated as follows:

POSTGRADUATE MEDICAL STUDY: Postgraduate medical study is that ordinarily done under other than university direction in medical subjects by graduates in medicine. If under university direction, it is usually in the Extension Division. Its methods are varied, but much of it is done through hearing lectures and witnessing demonstrations. Its chief characteristic is further training in the practice of medicine. Research is not a factor. The courses are usually brief—from one week to six months—but may extend to one year. University degrees, diplomas or certificates should not be granted for work of this kind covering a period of less than one scholastic year.

The committee recognizes that the term "postgraduate" is not desirable but that it is so well fixed by usage both in America and Europe that there seems little probability of soon displacing it. The committee would recommend, however, that so far as possible in the development of courses of this character

in universities other more descriptive terms should be used, as for example, extension courses, review courses, special courses, short courses for general practitioners, clinical weeks, and so forth, instead of the term "postgraduate."

Respectfully submitted,

(Signed) RAY LYMAN WILBUR, *Chairman*
LOUIS B. WILSON
WILLIAM PEPPER

APPENDIX A

GRADUATE MEDICAL STUDY I.—Graduate medical study is that carried out in a university in medical subjects by graduates in medicine. It is usually under the direction of the general graduate school, the graduate medical school, a graduate department of the medical school, or the school of public health or hygiene. It follows the usual methods of graduate study in other fields. Its chief characteristic is research, although much time may be devoted to advanced training in the art of medical specialties. Its usual minimum unit for university recognition is one year. It may lead to the granting of such degrees as Master of Arts or Science, Doctor of Public Health, or Doctor of Philosophy.

GRADUATE MEDICAL STUDY II.—Graduate medical study is special medical study in a university in selected public health, medical science or clinical subjects. It is under the direction of the school of public hygiene, or the school of public health, or the general graduate school, or the graduate medical school, or the graduate department of the medical school. One academic year devoted to the study of a single (convention) medical subject is the minimal matriculation period; and constitutes credit toward a graduate university degree, maturing within a minimum of two academic years for a master's degree and within a minimum of three such years for a doctorate degree. The first year provides for appropriate special fundamental studies entirely scientific, or partly scientific and partly clinical; and may also include research. The second year provides for advanced special scientific or clinical practice and thesis work. The third year provides for special scientific or clinico-scientific research; but may also include some practical clinical or teaching work. Graduate medical studies are available to graduates in arts, or science or medicine. The degrees concerned are (1) Master of Science (2) Master of Science in Medicine (3) Doctor of Science in Medicine (4) Doctor of Philosophy (5) Doctor of Public Hygiene (6) Doctor of Public Health. Any of these degrees may be granted to doctors of medicine; but the first and fourth are the only degrees available to other graduate students.

POSTGRADUATE MEDICAL STUDY.—Postgraduate medical study is that ordinarily done under other than university direction in medical subjects by graduates in medicine. If under university direction, it is usually in the Extension Division. Its methods are varied, but much of it is done through hearing lectures and witnessing demonstrations. Its chief characteristic is further training in the practice of medicine. Research is not a factor. The courses are usually brief—from one week to six months—but may extend to one year. University degrees may be granted, or proper diplomas or certificates may be obtained.

The term postgraduate is not desirable, but it is so well fixed by usage both in America and Europe that there seems no probability of displacing it.

Report on Teaching of Fractures

Most of the medical schools of the country have reduced the number of hours in their undergraduate curriculum. As a result, in many special fields of medical work the undergraduate instruction has become of necessity limited very largely to a thorough understanding of general principles followed by an opportunity to apply these to individual cases under the direction of a teacher. As a result of this, it has become of increasing importance that those responsible for the undergraduate teaching of fractures should concentrate their efforts on formulation and explanation of broad general principles.

To make up for the lack of undergraduate teaching it is of greater importance that in each hospital at least one man be made responsible for the careful training of an intern staff in this field. Moreover, the need for the establishment of opportunities for the practicing physician to refresh or increase his knowledge in the treatment of fractures has become much greater.

It is therefore recommended that

1. Even greater stress be placed on instruction in pathology of fractures, process of repair, and the broad general fundamental principles of treatment.
2. Each hospital, whether it contains a special fracture service or not, appoint someone who shall be responsible for the training of interns in the treatment of fractures.
3. Wherever possible, opportunities for continued education for graduates in medicine be established both in teaching hospitals and under the auspices of the various medical societies.

(Signed) WILLIAM DARRACH

JOURNAL OF THE Association of American Medical Colleges

Volume 5

JULY, 1930

Number 4

DR. FRED C. ZAPFFE, Editor, 25 East Washington Street, Chicago

Results of State Board Licensing Examinations

The Journal of the American Medical Association, April 16, 1930, publishes the results of the annual study made by the Council on Medical Education and Hospitals of the results of examinations for licensure in medicine held by the various state licensing boards.

Much information of great interest to medical educators is contained therein. The fact of outstanding interest is that the number of failures has steadily diminished, year by year, until last year. The percentage for 1928 and 1929 is the same, 6.4, for the graduates of 1929 who presented themselves for examination. But, it must be pointed out that all the graduates of 1929 have not yet appeared for licensure. Some are serving internships and will not apply for a license to practice until this year, or even later. Hence, the returns are not complete. They are, however, as complete as it is possible to make them at this time.

Of the 66 class A schools in the United States represented in this list, 37 had no failures among 1,704. The remaining 29 schools, with 1,555 graduates examined, had 79 failures, or 5.08 per cent.

Canadian medical schools were represented by 22 graduates with no failures.

Analysis of the examinations themselves was not made. No doubt, had it been made, many factors bearing on the failures, and the no failures, would have

been disclosed. Failures are often the result of the type of examination, especially referable to the questions asked and the person of the examiner.

It is futile to pass judgment on the percentages given in the tables inasmuch as they are extremely misleading. A 100 per cent failure is in the nature of a shock, but when this percentage represents the result in only one single case, its meaning is nil. Hence, the percentages of failure, or even the actual number of cases of failure cannot be regarded as evidence of the quality or character of instruction given by a medical school. Furthermore, it is a well known fact that in some schools the teaching is directed, unconsciously or otherwise, toward establishing a capacity for passing state board examinations for licensure. Every now and then a school will point with pride to the record of its graduates in passing these examinations and claim that the teaching given was responsible.

It is a solace to know that things are getting better. Teaching is improving; students are better trained and do better work in college; they are absorbing more worth while information; the examining methods of state examining boards are better than they were. It is gratifying to learn that everybody is "up on his toes" trying to improve his share of the work. There are fewer failures in these examinations. May it not be assumed that the cost of medical education is thereby reduced somewhat?

College News

St. Louis University School of Medicine

In the interest of public health, ethical advertising and recognized standards in pharmaceutical manufacture, the president of St. Louis University has created a committee to be known as the Committee on Grants for Research, composed of the dean of the School of Medicine, the associate dean and the professor of biochemistry, to deal with full power with the various questions arising out of the situation. At the thirteenth annual Physiological Congress held in August, 1929, Dr. E. A. Doisy announced the isolation of a follicular hormone now known as theelin. On February 7, 1930, Dr. Doisy and his coworkers, Clement D. Veler and Sidney A. Thayer, had assigned to St. Louis University any patent rights which may be thought wise to secure. The terms of the donation provide that the eventual income, if any, is to be used entirely for the prosecution of research in the School of Medicine; any funds accruing are to be administered as the other funds of the School of Medicine subject to the general financial policies of the university.

The president of the university, in accepting this donation, committed to the newly established Committee on Grants for Research the administration of all contractual or other relationships which may arise within the university or out of it from the newly isolated product. He further empowered the committee, subject to the general university administration, to allot its income in accordance with the wishes of the donors and to administer a testing laboratory for ensuring a uniform and a dependable product.

The Committee on Grants for Research has completed arrangements with

a reputable commercial house manufacturing biological products. By the terms of the agreement, provision is made that all developments in the preparation of "Theelin," its clinical applications and the discovery of its properties must be shared alike by the university, on the one hand, and the licensee or licensees under the patent rights, on the other. In effect, therefore, cooperative research by all those interested in the manufacture and sale of the product is assured.

The one manufacturing company which has thus far been licensed will enjoy the exclusive right in the United States for the manufacture and sale for eighteen months. After that period, however, the patent rights are not restricted and other firms may be given license to manufacture and distribute under the same restrictions under which the first licensee is operating. The fullest liberty of publication is assured by the terms of the agreement. Moreover, all licensees will be required to submit their products to the testing laboratory of the university. It is the intention of the university to publish the various documents in regard to these arrangements in a special bulletin.

University of Colorado School of Medicine

The university has recently been informed that The Commonwealth Fund of New York has appropriated the sum of \$205,000.00 to the Child Research Council at the university. This money will be given in graduated amounts over a period of seven years. This appropriation will enable the Council to employ a full-time director and also establish research fellowships.

The Child Research Council was established in 1927 by taking over the Sel-

menne Winter Foundation which had been in operation since 1922. The Council has been supported by voluntary donations from people of Denver. The work that has been done so far has been carried on by a volunteer staff of physicians under the leadership of Dr. W. Walter Wasson. The objective toward which the Council is organized is a systematic study of the individual from birth to adult life, with particular reference to the inception of disease. Since the time of the first organization Dr. Wasson has carried on rather extensive radiological studies on infants and children. A number of physicians have begun studies in special fields. With the advent of a full-time director and a full-time technical staff, the Council plans to enlarge upon the work that it has undertaken. It is also hoped that the gift from the Commonwealth Fund will stimulate further financial support from local sources.

The resignation of Samuel H. Gray, associate professor of pathology, was accepted in order that Dr. Gray might accept the position of hospital pathologist in the Jewish Hospital, St. Louis.

Promotions: Kehar S. Chouke, assistant professor of anatomy. Robert M. Hill, associate professor of biochemistry. Frederick E. Becker, assistant professor of pathology. William B. Draper, assistant professor of physiology and pharmacology. Joseph L. Harvey, assistant professor of surgery (roentgenology). James M. Shields, assistant professor of ophthalmology.

University of Illinois College of Medicine

Faculty appointments: P. Rosenblum, assistant professor of pediatrics; W. J. R. Camp, assistant professor of pharmacology; H. E. Jones, assistant professor of surgery; G. von Bonin, associate in anatomy; A. J. Nedzel, associate in bacteriology; Marion Hood, instructor in medicine; H. Leichenger and J. A. Suldane, instructors in pediatrics; J. E.

Fitzgerald, instructor in obstetrics; H. J. Smith, instructor in ophthalmology; L. Amtman, Wm. Boikan, G. Milles, and L. Parmacek, instructors in pathology; P. Blickensdorfer, instructor in pharmacology; J. M. Esau, instructor in physiology.

Washington University Medical School

E. Arthur and Frank E. Ball of Muncie, Indiana, have given the school \$60,000 for research in hearing at the Oscar Johnson Institute.

Appointments in department of ophthalmology: George H. Bishop, professor of applied physiology; Louis A. Julianelle, associate professor of applied bacteriology and immunology; James A. Hawkins, associate professor of applied biochemistry; R. Wendell Harrison, instructor in applied bacteriology and immunology; Garvey Bowers, research assistant in applied bacteriology.

Drake University School of Medicine

Faculty appointments: Harold Lindsay Amoss, full professor of medicine; Julian D. Hart, professor of surgery; Wiley Davis Forbus, professor of pathology; William A. Perlzweig, professor of physiologic chemistry; Francis Huntington Swett, professor of anatomy; Oscar Carl Edward Hansen and Christopher G. Johnson. The positions of the Drs. Hansen and Johnson are not stated.

Johns Hopkins Hospital and School of Medicine

The General Education Board of New York has given \$500,000 to be used for the completion of the William Osler Medical Clinic and the William Stewart Halstead Surgical Clinic, it was announced April 21. This gift raises the total given by the board toward the completion of these buildings to \$1,750,000. These two buildings when finished will

add 165 beds to the hospital, the great majority of which will be free, with facilities for both white and negro patients, men, women and children. The highest charge to be made for any bed in the building will be \$3 a day. An anonymous gift was given a year ago for the endowment of the additional beds which the new buildings will provide. It is expected that the Osler clinic will be ready for occupancy in December. When it is completed, work will be begun on the Halstead clinic.

Meharry Medical College

Work was begun in April on the new \$2,000,000 medical and dental school building to be erected near Fisk University. This development represents the generosity of the Methodist Episcopal Church, the General Education Board, the Julius Rosenwald Fund, the City of Nashville, the alumni, and friends of the college, and Mr. George Eastman, head of the Eastman Kodak Company, who provided the funds needed for the building and equipment of a dental hygiene wing in the department of dentistry of the college.

It will be the most comprehensive and complete plant and equipment for the training of Negro youth in medicine and allied sciences in the world. It is reported that the new buildings will be ready for occupancy in the Fall of 1931.

University of Alabama School of Medicine

The nucleus of a library to promote and encourage the study of medical history, philosophy and ethics, particularly in Alabama and the Southern states, has been established. The honor for projecting this project belongs to the Freshman Class which entered in 1928. Abandoning the old custom of buying a class hat or cane or slicker, these Freshmen instead contributed \$5.00 each to found the Freshman Library Fund. The precedent was

followed by the Freshman Class which entered in 1929. The class officers recently turned over to four trustees the sum of \$562.50, which has been deposited to draw the same interest on monthly balances as the general university fund.

To maintain the identity of the fund and to keep alive interest in this unique student movement, the two classes in joint meeting, by unanimous and formal action, have adopted a protocol which provides for perpetuation of the board of trustees by fixing overlapping terms of tenure and providing for the filling of vacancies by vote of the remaining trustees and of the presidents of contributing classes resident in school at the time. All purchases are made only on recommendation of the school library committee. Provision is made not only for preserving the individuality of the fund as a student fund but also for perpetuating the books and journals as a distinct unit in the school library for all time, no matter how large the library may become.

Facing the entrance to the library hangs a memorial plaque purchased by the university and recently dedicated to the students and their library. Each class which follows the precedent established by the 1928 Freshmen will have its numeral added. The contributions from the first two classes have come as free will offerings.

Harvard Medical School

Faculty appointments: Robert M. Green, assistant professor of applied anatomy; Benjamin White, assistant professor of bacteriology and immunology and of preventive medicine and hygiene; William H. Robey, clinical professor of medicine; Arlie V. Bock, Samuel A. Levine, James P. O'Hare and Francis W. Palfrey, assistant professors of medicine; Harold P. Higgins, assistant professor of pediatrics; Hallowell Davis and Percy G. Stiles, assistant professors of physiology; Harry

C. Solomon, assistant professor of psychiatry; James D. Barney, assistant professor of genito-urinary surgery; William C. Ladd, assistant professor of surgery; Edward C. Streeter, lecturer on the history of medicine; George B. Magrath, instructor in legal medicine; Walter Bauer, instructor in medicine; Tracy J. Putnam, instructor in neuropathology.

Jefferson Medical College

Faculty appointments: Thomas C. Stellwagen, professor of genito-urinary surgery; Joseph Clarence Keeler, professor of otology; and Louis H. Clerf, professor of bronchoscopy and esophagoscopy.

Western Reserve University School of Medicine

G. Richard Russell and L. P. Harsh, of the department of pediatrics, will leave August 1 for a year of European study. Dr. Russell will spend most of the time with Professor Ernst Freudenberg at the University of Marburg. Dr. Harsh will do most of his work with Professor Birk at the University of Tübingen.

The department of pediatrics will have two guests, beginning September 15, in Privatdozent Otto Beck of the University of Tübingen and Dr. H. Bruhl of the University of Marburg.

Herbert S. Reichle, of the department of pediatrics has gone to Leipzig for six months, where he will study under Professor Bessau at the University of Leipzig on tuberculosis, bacteriology, and immunology.

To commemorate the life and work of Dr. Herbert Steuer, on the second anniversary of his tragic death, June 6, the Steuer Memorial Prize will be awarded to William A. Sommerfield, a junior in the School of Medicine.

Dr. Steuer was electrocuted on June 6, 1928, while making an x-ray examination of a patient. Friends of his established the memorial, the income from which goes each year to an investigator

who does meritorious work in the department of anatomy of Western Reserve University. This year the committee in charge of the award named four counts in giving the prize to Mr. Sommerfield.

University of the Philippines

A gift of \$150,000 has been received from the Rockefeller Foundation for the construction of a building to house the Graduate School of Hygiene and Public Health. The school furnished the site and promises to provide an annual budget of \$40,000 for maintenance.

Northwestern University Medical School

Plans are being made for a hospital on the McKinlock campus which are said to be the culmination of more than eight years of negotiation for the complete reaffiliation of Wesley Memorial Hospital and Northwestern University. The main building of the new hospital, to be erected at a cost of \$5,000,000, will be 18 stories in height and its tower will extend upward 12 more stories. It will have 600 beds. Its clinics, together with the existing facilities the university has in Passavant Hospital, will form on the McKinlock campus a complete medical center, capable of caring for almost 1,000 patients. The new hospital will be largely devoted to patients from salaried and wage-earning families. More than two-thirds of the patients will be cared for at less than average cost, and many will be cared for free of charge. On the other hand, complete apartments, including three rooms, a kitchenette and bath, a heretofore unknown feature in hospital equipment, may be obtained during convalescence.

Columbia University College of Physicians and Surgeons

Samuel T. Orton has been appointed professor of neurology and neuropathology and Henry A. Riley professor of neu-

rology and neuroanatomy. The resignations of Charles Hendee Smith and Charles N. Dowd as professor of clinical diseases of children and professor of clinical surgery, respectively, are announced.

Medical College of Virginia

Isaac A. Bigger, associate professor of surgery at Vanderbilt University, has accepted the professorship of surgery.

George E. Vincent, lately president of the Rockefeller Foundation, was the speaker at the ninety-second commencement exercises. This year there were 196 graduates, 95 in medicine, 23 in dentistry, 36 in pharmacy, and 42 in nursing.

Joseph Lyon Miller, Thomas, West Virginia, was awarded the honorary degree of doctor of letters at the commencement exercises on June 3, 1930. Doctor Miller is an alumnus of the college of 1900 and is distinguished as a medical historian, bibliophile, and collector of rare medical books.

The college has just received a grant of \$120,000, \$40,000 from the Julius Rosenwald Fund and \$80,000 from the General Education Board, for the construction of a dormitory and educational unit for the school of nursing of the St. Philip Hospital. This is an institution for negroes, owned and operated by the college.

Josiah Macy Junior Foundation

The Josiah Macy Junior Foundation for preventing and curing disease and relieving human suffering has been established through a gift of \$50,000,000 by Mrs. Walter Graeme Ladd, of Far Hills, N. J. The foundation was incorporated on April 23 in Albany, with Dave Hennen Morris chairman of the board.

Dr. Ludwig Kast, professor of clinical medicine at the New York Post-Graduate Medical School, has been elected president of the foundation.

It is understood that the foundation will not limit its work to any particular

field, but that it will probably lean most strongly toward development of methods to relieve the suffering of the mentally disordered.

At the first meeting of the directors, held on April 22, the officers were elected as follows: Josiah Noel Macy, secretary of the board; Valentine E. Macy, Jr., treasurer. The executive committee consists of the president, the chairman of the board, Dr. James F. McKernon, the Rev. Samuel Trexler, Frederick J. Faulke, Marlborough Churchill, Lieutenant-Colonel U. S. A., retired, is executive secretary. The temporary offices are at 365 Park Avenue. Other members of the board are the Rev. Harry Emerson Fosdick, Chester H. Aldrich, J. Macy Willets, Lawrence Morris, Professor John Dewey, Dr. Nellis B. Foster, Hamilton Hadley, Dr. Stewart Paton, of the Johns Hopkins University.

Guggenheim Memorial Foundation

Among the fellowships awarded this year are included the first Latin American exchange fellows of the foundation. Arturo Rosenbluth Stearns, professor of physiology, School of Medicine, National University of Mexico, is to study physiology and biochemistry at Harvard University. For studies in the Far East, Homer W. Smith, Sc. D., professor of physiology, New York University and Bellevue Hospital Medical College, will carry on physiologic and biochemical investigations in Borneo, the Malay States and Siam on certain fresh water sharks and other fishes with reference to the composition of the blood and the function of the kidneys. For research in medicine and allied subjects, five fellowships have been granted: Edward Lee Howes, research fellow in surgery, Yale University School of Medicine; studies in problems of wound healing; Eric Oldberg, surgeon, Peter Bent Brigham Hospital, Boston; investigations of the physiology of

the brain in Oxford and Berlin; Theodore L. Althausen, assistant professor of medicine, University of California Medical School: investigations into certain functional disturbances of the liver, in Paris and Leipzig; Eugene M. Landis, University of Pennsylvania School of Medicine: studies of the reactions of the minute blood vessels of the human skin with Sir Thomas Lewis at University College, London; Arthur Grollman, associate in physiology, Johns Hopkins University School of Medicine: researches in the field of physical chemistry as applied to physiology and medicine in Copenhagen, London and Berlin.

Residency in Tuberculosis

The Chicago Tuberculosis Institute has

granted the College of Medicine of the University of Illinois \$2,500 a year for a period of five years to establish a "Theodore B. Sachs residency in the field of tuberculosis and allied diseases."

University of Chicago New Heart Clinic

The Baron Hirsch Woman's Club has pledged \$10,000 toward the establishment of a cardiac clinic on the Midway as a part of the University of Chicago's clinics. The purpose of this clinic will be to keep in touch with every patient in whose history there is a record of heart disease. Transportation, food and lodging will be furnished to those in need. A survey will be made to secure part-time or light work for those who are able.

General News

Cameron Prize University of Edinburgh

The Cameron Prize of the faculty of medicine for 1930 was awarded conjointly to George R. Minot, of the Collins P. Huntington Memorial Hospital of Harvard University and William P. Murphy of the Peter Bent Brigham Hospital for their work on the liver treatment of pernicious anemia.

Georgia Health Week

In May a health program covering one week was carried out under the sponsorship of the Medical Association of Georgia, in cooperation with the medical schools of Emory University and the University of Georgia, the state board of health and the Georgia Anti-tuberculosis Association.

Hideyo Noguchi Lectureship in History of Medicine

The first course in this lectureship was given at Johns Hopkins University School of Medicine, Baltimore, May 8-10, by Dr. Charles Singer, lecturer in the history of medicine, University College, London. The general subject was "The Transition from Medieval to Modern Science."

Cleveland Clinic Foundation Fellowships in Medicine

This foundation offers four two-year fellowships in medicine, beginning July 18. Applicants must have had at least one year of hospital intern service. These fellowships carry payments of \$1,200 for the first and \$1,600 for the second year. Fellows will have an opportunity for extensive and varied practical service. Application blanks can be secured from the secretary of the fellowship committee, Cleveland Clinic, Cleveland.

John Phillips Memorial Prize

The American College of Physicians has announced the John Phillips Memorial Prize of \$1,500 to be awarded for the most meritorious contribution in internal medicine and in sciences contributing thereto. The thesis must be based on published or unpublished original work and mailed to the executive secretary of the college on or before Aug. 31, 1930; it must be in English, in triplicate, typewritten or printed, and the work on which it is based must have been done in whole or in part in the United States or Canada. The recipient of the prize would be expected to read the essay at the next annual meeting of the college. Announcement of the prize will be made not later than two months before the annual meeting; the college reserves the right to make no award of the prize if a sufficiently meritorious piece of work has not been received. It is a memorial to Dr. John Phillips, who lost his life in the Cleveland Clinic disaster last year. The executive secretary of the college is E. R. Loveland, 133-135 South Thirty-sixth Street, Philadelphia.

Fritz Schondinn Medal

An international committee of juron appointed by the Tropical Institute of Hamburg has awarded this medal to M. Hartmann, Berlin, F. d'Herelle, Yale Medical School and E. Reichenow, Hamburg, for outstanding work in microbiology.

Child Guidance Clinic at Portland

At a meeting of the Portland Child Guidance Clinic Association in May, articles of incorporation of the association were completed and plans formulated for the establishment and maintenance.

ance of a child guidance clinic. The association is formed for the purpose of establishing facilities in Portland for the study and relief of conditions arising from mental abnormalities in children. The clinic comprises a personnel consisting of a psychiatrist, a psychologist, social service workers and clinical aid; it will be conducted in close cooperation with the public schools and the juvenile court, as well as with the medical school, to afford general physical examination and treatment to those whose physical disease may contribute to mental delinquency. As soon as practicable, the clinic will be established in the new clinic building of the University of Oregon Medical School, where special rooms are provided assuring proximity and accessibility of other clinics in general diseases of children. The clinic also affords opportunity for the development of the department of psychiatry in the medical school. The expense will be met partly by appropriations from the school board, the court of domestic relations, the medical school and other organizations and partly by subscriptions to membership in the association, endowments and private gifts and benefactions.

Oliver Rea Scholarship Fund

A fund was recently established to promote advanced medical education and research in the United States, and to stimulate and train teachers in medicine and surgery. Special attention is to be paid to diseases of unknown etiology. There are also to be established scholarships to defray the expense in part or in full of the tuition of physicians at the New York Postgraduate Medical School and Hospital, and a part of the income is to be used to provide salaries for scientific workers in medicine and surgery, to establish prizes for valuable contributions to medical literature, or in any other manner to promote graduate medical education. The donor of the fund, Mrs.

Edith Oliver Rea, Swickley, Pa., has specifically petitioned that practicing physicians of Allegheny County, Pa., be given preference. Names of really deserving physicians whose responsibilities would otherwise make it difficult for them to meet the whole cost of graduate study shall be recommended. The committee in charge of the distribution of these scholarship aids consists of Drs. Ludwig W. Kast, chairman, James F. McKernon and Edward H. Hume, all of New York and all members of the board of directors of the New York Postgraduate Medical School and Hospital, which institution has the fund at its disposal.

Graduate Course in Cancer

The faculty of medicine of the University of Strasbourg announces that the third graduate course on cancer will be held at the university and the Anti-Cancer Center in Strasbourg, July 16-26. Theoretical and practical courses are offered and will include methods of treatment by physical agents; living cases will also be demonstrated. The number of graduate students will be limited; the fee is 500 francs. Further information may be had from Dr. Gunsett, director, Anti-Cancer Center, Civil Hospital, Strasbourg, France.

Graduate Courses in Budapest

Theoretical and practical courses of six weeks' duration will be held, beginning October 15, under the auspices of the Hungarian Medical Postgraduate Committee. The courses will be given to groups not exceeding ten members and will be in ophthalmology, urologic surgery, gynecology and obstetrics, otorhinolaryngology and surgery. The fee will be \$5 an hour, to be divided among the participants. If sufficient participants present themselves, courses will be held also in other branches of medicine. Inquiries should be addressed to Dr. Edmund Zalka, Budapest, Hungary, IX. Gyalı ut 1. Szent Istvan korhaz.

Appeal for Chair of Obstetrics at Otago University

Stimulated by the recent establishment of chairs of obstetrics at the universities of Melbourne and Sydney, the New Zealand Obstetrical Society has initiated a public appeal for a sum of £25,000 to provide a yearly salary of £2,000 for a professor of obstetrics at the medical school of the University of Otago. The time is considered to be opportune in view of the decision of the New Zealand government to build at the Dunedin Hospital a modern obstetric hospital of forty beds at a cost of £50,000.

Physiology and Medical Education

In keeping with the development of physiologic chemistry, the department of chemistry at the Physiologisches Institut in Berlin has been made an independent Physiologisch-Chemisches Institut. The instruction in the two institutes will, however, continue to constitute a unit.

Summer Courses in Medical Schools

The Journal of the American Medical Association, May 31, 1930, p. 1785, publishes a list of undergraduate and graduate summer courses to be given by 34 medical schools. Teaching in all subjects is scheduled and opportunity for research is given.

Kaiser Wilhelm Institute

This institute, closely resembling the Rockefeller Institute of New York, was opened at Heidelberg, Germany, in May.

It will have departments of pathology, physiology, physics and chemistry under the direction of noted scientists, Dr. L. von Krehl, Nobel prize winner; Dr. Otto Meyerhoff, Dr. Hauffer and Dr. Kuhn, respectively.

There are already thirty-five Kaiser Wilhelm Institutes in various parts of Germany, devoted to scientific research.

Fellowships in Psychiatry

The Commonwealth Fund of New York has, for a second time, made five fellowships available in the department of psychiatry at the Medical School of Harvard University, for workers who have already shown evidence of good work in psychiatry, who wish to prepare themselves for a career in psychiatry. Each fellowship may be continued for three years, but continuation would depend on the excellence of the work of the fellow. Each fellow would follow a program determined by his special needs and interests. The sum of \$45,000 has been appropriated to provide five additional three year fellowships in psychiatry at the Boston Psychopathic Hospital. Letters of application, with details as to previous training and experience, may be sent to Dr. C. Macfie Campbell, Boston Psychopathic Hospital, 74 Fenwood Road, Boston.

The Fellowship of Medicine and Post-Graduate Medical Association

In 1919 there was founded, with Sir William Osler as president, an association to provide medical instruction for medical officers from the dominions and from the United States. It was termed the Allied Fellowship of Medicine. In the same year it was amalgamated with the Post-Graduate Medical Association. During 1929, 606 postgraduates availed themselves of the general and special courses, as compared with 506 in 1928. The cosmopolitan character of the members is shown by the following figures: British Isles, 289; Australia, 40; Canada, 38; New Zealand, 16; South Africa, 22; India, 91; United States, 42; South America, 2; Egypt, 7; China, 4; Italy, 2; Japan, 2. Special course lists for the ensuing year are dispatched each October to home and overseas postgraduates, hospitals and universities. In 1929, 5,000 lists were sent out. Fourteen overseas banks in London receive annual supplies

of literature to be handed to medical clients. Shipping companies allow supplies of literature to be sent to their surgeons for distribution to medical passengers. In addition to the courses for members, the association arranges a series of lectures open to all physicians free of charge. Last year lectures on "Pitfalls in Medicine and Surgery" were delivered from January to March, and on "Common Complaints" from October to December.

Graduate Course in Internal Medicine in Wisconsin

An extensive graduate medical course in internal medicine will be given, beginning June 23, in Beaver Dam, Beloit, Fond Du Lac, Janesville, Madison and Watertown, in each of which cities one lecture will be given every week. The course will consist of twelve lectures and clinics, and will be given by Drs. Ralph H. Major, professor of medicine, University of Kansas School of Medicine, and John H. Musser, professor of medicine, Tulane University of Louisiana School of Medicine. Further information may be had from the University of Wisconsin Extension Division or the medical extension advisory committee of the state medical society.

Department for Medical History at Johns Hopkins University

Joseph S. Ames, LL.D., president, recently announced a gift from the General Education Board, totaling \$312,500, for the establishment of a department of the history of medicine. The sum is in addition to \$750,000 previously given to build the William H. Welch Medical Library and \$250,000 for the maintenance of the professorship in the history of medicine which is occupied by Dr. William H. Welch. The gift is given in the form of \$12,500 for each of five years and then a capital sum of \$250,000, making possible provision for other professorships in

the department of the history of medicine. Since the library was first planned, it is reported, it has been the wish of the authorities at Johns Hopkins to create a full department to investigate the various branches of medical history.

University Extension Course Goes to Kansas Physicians

The University of Kansas School of Medicine is bringing graduate medical study to the practicing physician. The course, nine weeks on internal medicine, which opened June 4, is conducted by Drs. Lawrence D. Thompson and John V. Lawrence, St. Louis. The course will be given at Hutchinson, Salina, Beloit, Belleville, Marysville, Clay Center and Manhattan. A lecture will be held each week in these towns.

National Research Council Receives New Funds

An appropriation of \$22,500 from the Spelman Fund has been given to the National Research Council for continuation of the work of the committee of the division of anthropology and psychology on child development for the two fiscal years, 1930-1931 and 1931-1932. It will be given at the rate of \$10,000 a year and includes also \$2,500 to cover the quarter from the close of the present fiscal year of the committee on March 31 to the beginning of the regular fiscal year of the council on July 1. The Commonwealth Fund appropriated \$18,800 for the support of the work of the joint committee of the divisions of medical sciences and of biology and agriculture on infectious abortion for a three year program of study on this disease. The money will be applied toward the maintenance of a cooperative central laboratory at the Michigan State College of Agriculture and Applied Science for the culture and study of strains of the organism *Brucella*, the cause of the disease.

Personals

Frederick Etherington has been appointed dean of the Faculty of Medicine of Queens University, Kingston, Canada, succeeding J. C. Connell who resigned after twenty-six years of service.

John Wyllie of Glasgow University, Scotland, has been appointed to the Arthur R. Elliott chair of public health and preventive medicine in Queens University, Kingston.

Henry B. Ward, professor of zoology in the University of Illinois, and an ex-president of this Association, delivered one of the De Lamar lectures at the School of Hygiene and Public Health of Johns Hopkins University on April 1.

Joseph Erlanger, professor of physiology in Washington University School of Medicine, delivered the Hitchcock lectures at the University of Chicago.

Charles Singer, lecturer on the history of medicine in the University of London, will conduct a seminar on the history of medicine this summer at the University of California.

Stuart Graves, dean of the University of Alabama School of Medicine, has resigned as acting health officer of the state of Alabama and returned to take up his academic duties. He was the subject of many encomiums for the excellence of his work.

Withrow Morse, director of the department of physiological chemistry and toxicology in Jefferson Medical College, has retired.

C. C. Bunch, associate professor of research otology in the Johns Hopkins Medical School, has been appointed pro-

fessor and head of applied physics of otology in the Washington University Medical School.

Emile F. Holman, professor of surgery in Stanford University, was awarded the Samuel D. Gross prize (\$1,500) of the Philadelphia Academy of Surgery for his studies on abnormal arteriovenous communications.

Theodore L. Althansen, assistant professor of medicine in the University of California Medical School, will go abroad for a year as a fellow of the John Simon Guggenheim Memorial Foundation to study diseases of the liver.

Samuel H. Lippitt and Karl E. Kassowitz have been appointed associate professors of medicine in Marquette University School of Medicine.

Cadis Phipps has been appointed professor of medicine at Tufts College Medical School.

George E. de Schweinitz, professor of ophthalmology in the University of Pennsylvania Graduate School of Medicine, has been awarded the Leslie Dana Medal for prevention of blindness for 1930.

Walter J. Meek, professor of physiology in the University of Wisconsin Medical School, delivered a series of lectures on the circulation, at the College of Medicine of the University of Illinois.

Paul H. Stevenson, associate professor of anatomy at Peking Union Medical College, will teach in the department of anthropology in the University of California summer session from June 30 to August 9.

Max M. Ellis, professor of physiology in University of Missouri School of Medicine, has been appointed regional director of investigation in the Bureau of Fisheries.

Lafayette B. Mendel, Sterling professor of physiological chemistry in Yale University, delivered two lectures recently at Cornell University on "Some Relations of Diet to the Formation of Body Fat."

Wallace M. Yater has assumed the chair of medicine in Georgetown University School of Medicine, Washington, succeeding the late Dr. Wilfred M. Barton; he will continue to act as chief of medical clinics at the hospital.

Emile Holman, professor of surgery in the Stanford University Medical School, will serve as visiting professor of surgery at the Peiping Union Medical College from September, 1930, to the end of the year.

Nathan B. Eddy, associate professor of physiology and pharmacology in the University of Alberta, has resigned to accept

an associate professorship in pharmacology in the University of Michigan Medical School.

Leybourne S. P. Davidson has accepted the regius professorship in medicine in the University of Aberdeen, succeeding Ashley W. Mackintosh who resigned.

Charles L. Bonifield, professor of gynecology at the University of Cincinnati College of Medicine, was honored at a testimonial dinner given by more than 500 physicians and friends. Mayor Russell Wilson was toastmaster. A large portrait of himself was given to Dr. Bonifield, which he presented to the University of Cincinnati Medical College, with which he has been so closely associated for the last thirty years.

Kenneth M. Lynch, professor of pathology, Medical College of the State of South Carolina, was elected president of the South Carolina Medical Association.

Carl C. Speidel, associate professor of anatomy in the University of Virginia Department of Medicine, was awarded the President and Visitors' Research Prize of \$100 for his research on hyperthyroidism.

Deaths

David S. Fairchild, former dean and professor of surgery in the Drake University College of Medicine, now extinct, died of thrombosis, aged 82.

Wilfred M. Barton, professor of medicine and applied therapeutics in Georgetown University School of Medicine, died following an appendectomy, aged 58.

Samuel E. Earp, clinical professor of medicine, Indiana University School of Medicine, died of heart disease, aged 71.

Charles E. Riggs, emeritus professor of nervous and mental diseases in the University of Minnesota Medical School, died of bronchopneumonia, aged 76.

J. Garnett Nelson, professor of clinical medicine, Medical College of Virginia, died of carcinoma of the bladder, aged 57.

Ernest C. Angst, assistant professor of bacteriology in the University of Oklahoma, died recently.

Abstracts of Current Literature

Reputed Conflict Between Laboratories and Clinical Medicine

Wherever laboratory technic thrives and physical diagnosis declines there is a poor school for medical students.

The very modern fashion to exalt the laboratory and lower the efforts in clinical studies has given rise to a criticism of medical education that frankly offers to lower our educational standards by eliminating a large part of the preclinical laboratory work that supposedly has taken the students' interest away from the patient.

To me it seems indisputable that if a keen bedside observer engages in laboratory experiment or in the use of instruments of precision to explain or confirm his clinical conceptions, it can lead only to accuracy in physical diagnosis and sharpened bedside perspicuity.

If instruments of precision supplant physical diagnosis, there is an obvious confession of diagnostic weakness. If science dulls our wits, then we own a witless science. This has actually occurred in some schools where teaching chairs are occupied by immature clinicians whose diagnostic training has lagged behind their laboratory skill.—C. F. HOOVER: (*Science*, May 16, 1930).

Roentgen-Ray Department of a Teaching Hospital

The purpose of a department of radiology in a teaching hospital should be to furnish appropriate assistance in the routine examinations and therapeutic management of patients; to participate in staff conferences; to contribute to the instruction of interns and undergraduate students on the application of radiology to the problems of diagnostics and therapy—on the possibilities as well as the

limitations of the roentgen-ray aid; to help in various research problems as they arise, and to assist in postmortem examinations.

The hospital management should not look on the radiologic department as a profitable investment, and it should not be the aim of the department to contribute to the financial standing of the institution until all the foregoing objects have been achieved. In order to meet these aims, the physical equipment of the hospital should include standardized roentgen-ray equipment for radiography and fluoroscopy and for roentgen-ray therapeutic work, housed in rooms of sufficient size to permit demonstrations to students and interns. The personnel must include a medical radiologist, with such physician and lay assistants as the volume of the work demands. The hospital management must not look on the radiologic department merely as a photographic center for the production of pictures to be interpreted by the various surgeons, internists or other specialists who may have ordered the roentgen-ray studies.—JAS. T. CASE, *J. A. M. A.*, April 5, 1930.

Laboratory Teaching in Obstetrics

The opportunity to study the course of pathologic labor is all too infrequent, for in the average university clinic of fifty maternity beds the incidence of actual abnormality is not more than 5 or 6 per cent, except in the Southern states. It is therefore apparent that clinical instruction in the diagnosis, mechanism and management of abnormal presentation must be supplemented by manikin training in the obstetric laboratory.

Laboratory courses should make up a major part of obstetric teaching. All

teaching clinics should have working laboratories in the clinic. These need not be elaborate—simply a place where the student can be taught the routine laboratory procedures in connection with the study and management of his case. He should make smears and stain and examine them; examine urine; take blood for a Wassermann test and for blood counts, and be able to do a sedimentation test; learn to examine placentas; tease out the villi, and become proficient in many other details which fit him to practice medicine by himself. If he is drilled in routine, his work is of better character: carelessness leads to inaccuracy. It might be said that he learns these things in his course in chemical microscopy, which is true, but the real value of laboratory procedures is their clinical application to the case in hand, for here their significance is correlated with the clinical picture and is unforgettable. The obstetric clinic should have ready access to the roentgen-ray laboratory. The function of the laboratory in obstetric teaching is to correlate the preclinical sciences, the fundamentals and the value of research to clinical practice.—JOHN O. POLAK, *J. A. M. A.*, May 17, 1930.

Provision for Training Colored Medical Students

As a result of certain plans now materializing at Chicago, capable and carefully selected colored students can be admitted and given every facility and opportunity available to any students in the first two years. Some of the colored students whom we have had in the first two years have shown unusual ability and admirable qualities of character and at the University of Chicago they can hereafter look forward to unrestricted opportunity within the university in the work of the third, fourth and fifth years.

Through this cooperation it is hoped that there will be provided:

1. Skill, science and adequate clinical

and laboratory equipment for the treatment of the negro sick.

2. Thorough clinical training of colored medical students and interns.

3. Opportunity for postgraduate training of colored physicians.

4. Further research in diseases to which negroes are especially susceptible.

5. Training of negro superintendents and administrators of hospitals, of negro nurses, technicians, public health workers and social workers.

6. An atmosphere and environment in which capable negro medical men will find incentive and encouragement to the highest development and achievement.—BASIL C. H. HARVEY, *J. A. M. A.*, May 3, 1930.

New York Hospital-Cornell Medical College Association

One of the fundamental conceptions behind the formation of the association is the idea of developing a school of medicine with true university ideals which shall offer educational opportunities to a relatively small group of undergraduate students, numbering between two and three hundred, but which shall also afford facilities for advanced students in relatively large numbers, both in the laboratories and in the clinical departments. The provision of accommodations for a resident staff of approximately 125 is evidence of such a policy. Throughout the planning, facilities for advanced students in the clinics and laboratories have been provided. At the present time no formal graduate school is contemplated, but it is a definite policy that the great opportunities offered by the plant and the resources of the association should extend far beyond the scope of undergraduate medical instruction and should provide facilities for the advancement of medicine in practice and in science by whatever means the future may indicate as useful and in harmony with the purposes of the association.—G. CANBY ROBINSON, *J. A. M. A.*, April 19, 1930.

Book Reviews

Textbook on Orthopedic Surgery

By Willis C. Campbell, M. D. W. B. Saunders Company, Philadelphia. Price, \$8.50.

The broader view of orthopedics is taken by the author. He includes all affections of joints—acute and chronic, including traumatic arthritis; fractures, dislocations, all diseases of bones, including tumors, injuries and diseases of muscles, tendons, nervous system, everything, in short, that may and does lead to deformity of any part of the body. Differentiation of the normal from pathological conditions is well presented. Only accepted methods of treatment are presented. The usual custom of supplying a selected bibliography is followed. The author's extended experience ensures an authoritative presentation and those who wish to acquire special training in this field of medicine will find this a worth while book.

Treatment in General Practice

By Harry Beckman, M. D. W. B. Saunders Company, Philadelphia. 1930. Price, \$10.00.

A pharmacologist ventures into the field of therapeutics in a rather comprehensive manner, discussing the treatment of the principal diseases of man not included in a restrictive specialty for the purpose of supplying that which he believes is wholly lost by the present day teaching in medical schools. He does not claim to present any thing new but aims to take from published papers what is generally believed to be accepted treatment. In other words, the book is a lengthy review of the treatment of many diseases as presented by many hundreds of writers. To them he refers as the "authors" of the book and to himself as

the "editor." Now and then he gives vent to personal opinions and beliefs. It is questionable whether such a trying task will meet with the appreciation it may deserve, especially as the book is not of pocket size. Readers of such books prefer a more condensed version. Thirty pages of bibliography may prove of value for reference.

A Shorter Surgery

By R. J. McNeil Love, M.B., M.A. F.R.C.S. 2nd Ed. William Wood & Company, New York, 1930. Price, \$5.00.

Essentially a manual for the senior medical student, compact and of convenient size, aiming to condense and crystallize the more important principles of surgery. Theory gives way to practice. Emphasis is laid on methods of examination. No attempt is made to cover the whole field of surgery—but nothing is omitted that the undergraduate student should know. The shorter courses in surgery now prevalent in medical schools may advantageously be based on such a book as this.

Getting Well and Staying Well

By John Potts, M.D. 2nd Ed. C. V. Mosby Company, St. Louis, 1930. Price, \$2.00.

A good book for every student to read for who is not interested in reducing the terror tuberculosis has for every layman. Many persons imagine they have it, what they have not; many try to believe they have it not when they have it. It is important that physicians talk to their patients about tuberculosis in a language they can understand if he would help them. This book will help him to do that.

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